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Published Monthly, Price 1s.

# THE NAUTICAL MAGAZINE AND NAVAL CHRONICLE.

VOL. XXXIX.

No. 1, FOR JANUARY,

1870.

CONTENTS:



**Communications for Editor address to 31, Poultry, London, care of Mr. Potter, Agent for the Sale of Admiralty Charts.**

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FRANCIS LEAN, *Secretary.*

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N.B.—Mr. AUGUSTUS F. STRETTELL has, from infirmity, ceased to be the Collector for the Society, and Mr. LATIMER H. SAUNDERS has been appointed Travelling Secretary for the London District.

["*Times*," *Sept.* 22*nd*, 1869.]

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OF THE

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*Compiled from various Authorities, principally Spanish.*

BY A. B. BECHER, CAPTAIN, R.N., F.R.A.S.

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THE

# NAUTICAL MAGAZINE.

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AND

## NAVAL CHRONICLE

FOR 1870.

## A JOURNAL OF PAPERS

ON SUBJECTS CONNECTED WITH

## MARITIME AFFAIRS.

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AND

# NAVAL CHRONICLE.

JANUARY, 1870.

## AUSTRALIA (NEWCASTLE) TO CHINA, *touching at Pleasant Island, In the Barque Glenisle.*

Mauritius, October 22nd, 1869.

DEAR SIR,—Having read Captain Brown's accounts of his passages from Australia to China, during the months of October and November, 1865, and to Japan in March, 1868, and having made the passage last year, east of New Caledonia, during the months of August and September, I now take the liberty of sending you a short account of it to see if you think any part of it worthy of a place in the *Nautical*, and if so I may take the liberty again, and try to contribute a little towards getting a little more for our shilling, which you seem willing to give if we will assist.

We sailed from Newcastle N.S.W. on August 6th, with the wind moderate from the S.E. On the 10th, wind S.W., having good observations, and finding that we would pass near the Middleton Shoal during daylight, steered to get a sight of it. At two p.m. knowing we must be drawing near it I went to the masthead and soon made it out. I found the position given of it very correct, having only been a few days out and chronometer good. It was a splendid sight as seen by us during the daylight. We could see the breakers on it all round the reef, but quite smooth in the interior. From the 11th to the 17th, wind from W.S.W. to W.N.W. with hard squalls and rain : did not see Hunter or Feern Island as we were too far east. On rounding it, wind gradually hauling round to the S.E. until we sighted Mitre Island on the 23rd. This island looks like two on passing the west side of it, and on the north side of it there is a high rock which looks very much like a ship under sail. At noon we sighted Anouda or Cherry Island, the position of which I make is lat. 11° 36′ S., long. 169° 43′ 15″ E. When we were fully twelve miles from the island we saw a canoe

paddling towards us. On nearing it we gave them a rope and allowed two out of the five persons in her to come on deck. They both stood six feet high and were naked, with the exception of a small cloth round the loins. Their canoe was very neatly made, being cut out of a solid log and the shape of an albicore.

We experienced the westerly current as far as Pleasant Island, which Captain Brown mentions.* On the morning of the 29th at daybreak we sighted Pleasant Island. We seemed to have been seen from the island as soon as we saw it, as we could observe several canoes coming out towards us. At seven a.m. we had two or three of them alongside, and a whale boat with an Englishman in her. They did not attempt to come on board until they had received permission to do so. As soon as they were on deck there commenced a strong bartering match, they having cocoa nuts, a few fowls, a few eggs, and some large sized flying fish. One of the natives had a pistol; and another had an English Bible which he had obtained from some passing ship. He offered it to me for five gun-caps, or ten fishhooks. The Englishman had a few mats, very neatly made from the cocoanut leaf, which I got for a bag of small bread. There was another whale boat that came alongside at this time with another Englishman in her, who had been twenty-eight years on the island. His son was with him, a youth eighteen years of age. They brought three pigs in their boat, which I bought.

There were several more canoes came alongside, and I believe we had a visit from the same old woman mentioned by Captain Brown, and I am certain we are not the first ship that she has visited. I just saw her once, as she kept at the fore part of the ship. As to her beauty, just picture to yourself a kitchen wench of Shakespeare, and you have her true likeness. I spoke to the Englishmen about the island having a bad name, and they told me it was owing to a man named Jones who had been taken off the island by a man-of-war. They told me that they try to visit all ships that pass within an easy distance, and seemed to be very anxious for it to be known that they could supply ships with pigs and cocoanut oil. I told them they ought to try and cultivate potatoes which they said they would do. I read them the account of the island in the *Nautical* for 1865, and they were quite proud to think that they are mentioned in it. They gave me an advertisement† to put in the papers if I should come back to the colonies. This I take the liberty to enclose you; but I am making my story of the island too long. We had them on board for four hours. They wished me to tell them what I made the position of the island. They said it was nine miles across, and twenty-two miles in circumference, and from what I made the west end in, I think Captain Cheyne's position is the correct one for the centre, which I see is given in last year's *Nautical*, as I made the west end to be in long. 167° E.,

* Page 72, February, 1868.

† We have tried to read this production, and from the very faulty writing we have failed,—ED.

and I had the mean of eighteen sets of Lunars two days afterwards, and found the chronometers going steady, and got the errors, thanks to Mr. Toynbee's hints on Lunars, which I find very useful. I spoke to several captains in China who have had a visit from Pleasant Island, but I must conclude and go on with the passage.

We had light variable winds from the Equator to lat. 8° N., and had an easterly current of from twenty-five to thirty miles per day, which set us down in sight of Baring Island, although steering every day to pass within sight of Ovalou or Armstrong Island. I saw the track of four other ships making the passage about the same time that were set in the same direction. We then got a light breeze from the S.E. which brought us out of the bight again, and we felt a slight westerly current from then until we were in lat. 14° N., long. 155° E., wind varying from S.E. to S.W., and a strong S.W. sea.

We passed in sight of Arecifos or Providence Island, intending to steer up to sight Almagen or Grigan of the Marianne Group, and from there to pass to the northward of the Loo Choos. But we never felt any Trades until after we had passed the Mariannes; and then only had them light for a day or two. Then we found the wind from North, which obliged us to pass to leeward of the Loo Choo Islands, where we had a three or four days beat, although we felt the benefit of the Kuro Siwo or Japan current by being inside. The wind then came round from the eastward, and two days afterwards we sighted the Saddles, sixty-two days from Newcastle.

Four ships of us having sailed the same day bound to Shanghai, three of us were in sight together in passing the light ship, the other made the passage in fifty-one days. Two struck off from Brown's Range, and entered the China Sea by Van Diemen's Strait. They made the best passage, as the slowest sailer amongst us was up to the light ship at the same time as we were, and we were fourteen days ahead of her at the Arecifos, which she gained on us again by carrying steadier winds. You will see by this, that it is just the opposite to what Captain Brown experienced going the same passage during the months of October and November, 1865. I blamed the equinox for our having no Trades, and think that if we had been later and the Trades properly established again after the equinox, we should have done best by passing through the Mariannes, and not going so far north until we drew up towards the Loo Choos.

I have seen several tracks up west of New Caledonia. One ship was thirty-five days from Newcastle to Shanghai; two others forty-eight days, but these were all fast ships. I am afraid I am getting too long, and it will give you too much trouble to pick anything out of it. I should not have taken heart to write it, if it had not been for our friend with the queer name in the January number of the *Nautical*, where he says you will kindly take the trouble to cull anything useful out of what may be sent you. So if you should think any part of this letter worthy of a place in the *Nautical*, I shall feel glad to see it there; and it will give me heart to try and write to you again.

I was rather surprised on reaching home and getting the *Nauticals* for 1867, 1868, and part of 1869, to find that the Mauritius hurricane of March, 1868, was not mentioned, as it was one of the heaviest they have had for many years. I remain, yours, most respectfully,

WILLIAM HALL.

*To the Editor of the Nautical Magazine.*

[Our correspondent does good service to Navigation by his information, and we hope he will take heart in seeing that we appreciate his letters. Thus the best passage or the way to make it from Australia to China, receives confirmation and becomes useful to his brother seamen. We regret being unable to decipher the advertisement he encloses from Pleasant Island, but it seems of little consequence as he tells us himself what the islanders themselves have for sale. In reference to the Mauritius Hurricanes, their story has so often been told in our pages, and they are so regular in their occurrence, that we did not consider anything would be learned by noticing that to which he has above alluded. But we hope to hear again from Captain Hall, and can assure him that he may safely leave his imagined prolixity to our care.—ED.]

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## ON THE ORIGIN AND MIGRATION OF THE POLYNESIAN NATION.

*By the Rev. D. Lang, M.S.A.*

THE following paper on the Polynesian races of the various islands of the Great Pacific Ocean has been recently read before the Royal Society at Sydney, in Australia. And as these people are daily becoming more acquainted with us, both through our own Missionaries, as well as those of our American brethren, the information which it contains cannot but be acceptable to our numerous readers who occasionally visit them. Without waiting, therefore, for its transmission through another channel, we avail ourselves of the copy we find in the *Sydney Morning Herald*, of September 1st, to whose columns our journal is no stranger. The Author proceeds thus:—

The singular phenomenon which the South Sea Islands present to the eye of a philosophical observer is perhaps one of the most difficult to account for that has ever exercised the ingenuity of man. From the Sandwich Islands in the Northern to New Zealand in the Southern Hemisphere; from the Indian Archipelago to Easter Island, near the continent of America—an extent of ocean comprising sixty degrees of latitude and a hundred and twenty of longitude (*i.e.*, exactly twice the extent of the ancient Roman Empire in its greatest glory)—the same primitive language is spoken, the same singular customs prevail, the same semi-barbarous nation inhabits the multitude of the isles.

In using this language, however, I would not be understood to

include the numerous islands, and groups of islands, of the Western Pacific, the inhabitants of which are all remarkably different from those of the other South Sea Islands, and would seem to be derived from the same primitive stock as the aborigines of Australia and the Papuans of New Guinea. These islanders are all of a much darker hue than those of Polynesia Proper, or the islands to the eastward, many of them being jet black; and there is this remarkable distinction between the two races, that, while the languages of Eastern Polynesia are all mere dialects of the same primitive tongue, there is an infinity of languages in the islands of Western Polynesia, and all remarkably different from each other; every island of any size having one of its own, and the larger islands three or four.

Confining our attention, therefore, to the lighter-coloured Polynesian race, and leaving out of view for the present the question as to their original point of departure from the other habitations of mankind, the first question that presents itself for our consideration is by what process or processes has that very remarkable race spread itself over the vast Pacific, reaching as they have done the remotest inhabited islands of both hemispheres, from the Sandwich Islands in the Northern to New Zealand in the Southern Hemisphere, and stretching across the broadest part of the Pacific in the equatorial regions.

Without condescending, therefore, to notice the theories that have been sometimes advanced on the subject—viz., that the South Sea Islanders are indigenous, or that their islands are merely the summits of the mountains of a submerged continent or continents that once existed in that part of the terraqueous globe—the remarkable phenomenon in the Pacific Ocean being the creation rather than the disappearance of land, in the numberless coral islands that are constantly rising up from the depths of the ocean and at length becoming solid land—without noticing any further either of these theories, I would observe that the Polynesians, like all other islanders, are a maritime people, very frequently if not constantly at sea, and ever and anon making short voyages from island to island in their respective groups. Now, although the trade-winds that blow from the eastward in both hemispheres are remarkably regular, they are not uniformly so; and in such exceptional cases as do occur the islanders are occasionally overtaken by storms blowing in a contrary direction to that of the usual trade-winds, and are carried out perhaps hundreds of miles into the boundless ocean. For example, Captain Beechy, R.N., fell in, in the course of one of his voyages in the Pacific, with a party of South Sea Islanders, from Tahiti, who had been driven in this way six hundred miles from their native isle by a gale of westerly wind, and who in all likelihood would all have perished had they not thus been providentially discovered. Captain Duke, an old whaling captain, well known in his time in this city, with whom I made a voyage to England in the year 1839, told me that he had also fallen in, in one of his whaling voyages, with a large canoe filled with South Sea Islanders, with their provisions all but expended, and distant many hundred miles from their native isle. He very kindly took them all on board

his ship, and kept them there till he could land them, as he did at length, on their own island. Another whaling captain, equally well known in this city, in the olden time, I mean, Mr. Joseph Thomson, with whom I also made a voyage to England, in 1824, told me that he had fallen in, in one of his whaling voyages, with a large Tahitian canoe with a party of natives on board all but exhausted, and several hundred miles from their native island. He took them on board his vessel and supplied them with all that was requisite for their restoration and refreshment; but, as Tahiti was greatly out of his course at the time, he gave the islanders a compass, and showed them how to steer in order to reach it. The natives, as he afterwards learned, watched their silent guide with intense interest during the whole course of their homeward voyage; and when the summits of the well-known mountains of their native isle hove in sight at length, they leaped up in their canoe and danced for joy; and then, looking wistfully to the compass, said, "The cunning little thing, it saw them all the time."

In the only other case of the kind which I shall mention, and which occurred about thirty-five years since, a whaling captain out of this port, fell in with a canoe drifting about many hundred miles from the nearest land. There were two dead bodies in the canoe, while those who remained alive were in the last stage of exhaustion. These calamitous accidents, arising from sudden squalls have, doubtless, been often aggravated, and rendered unnecessarily fatal by the mental character and disposition of the South Sea Islanders themselves; for conjoining a remarkable proneness to despondency with their spirit of adventure, whenever the wind blows strong and adverse in their short and frequent voyages from island to island, instead of redoubling their exertions, they generally pull down all sail, and extend themselves in sullen despair along the bottom of their canoes, abandoning themselves and their tiny vessels to the mercy of the wind and waves.

In addition to these cases of accident from squalls and tempests, maritime enterprise, which is the characteristic of islanders, has also led, doubtless in numberless instances, to voyages of discovery on the part of the South Sea Islanders, as Quixotic as that of Columbus must have appeared to most of his contemporaries. For example, a solitary native of the Fiji Islands had been driven to sea by some sudden storm towards the close of last century, when fishing off the shore in his canoe, and had landed at length on the Friendly Islands, 360 miles from his native isle. In such circumstances no European, unacquainted with the science and art of navigation, would have ventured to put to sea in search of the distant island from which the stranger had been accidentally driven. But the thoughtless Polynesian, fired by the spirit of adventure, disregards the suggestions of prudence in such cases. Stimulated, accordingly, by the intelligence he had thus received from the stranger, of the existence of other islands in a particular direction. Tooi Hata Fatai, a chief of the Friendly Islands, set sail for the Fiji Islands some time afterwards, with two hundred and fifty followers, in three large canoes, each of which must have

carried upwards of eighty men, with provisions and water for the voyage. In such voyages, however, the unskilfulness of the pilot, or the unexpected change of the wind, would often carry the adventurous islanders far beyond their reckoning; and in such circumstances they would either founder at sea or perish of hunger, or be driven they knew not whither, till they reached some unknown and previously undiscovered island. In the latter case they would gladly settle on the new found land, fearful of again trusting themselves to the ocean, and entirely ignorant as to what course they should steer for their native isle. Since the commencement of the present century, and the formation of missionary settlements on certain of the more prominent Polynesian groups, there have been repeated and well authenticated instances of adventurers having left their native islands on such hazardous voyages as the one I have just referred to, and of having never afterwards been heard of.

But the state of society that has hitherto subsisted, from time immemorial, in the islands, affords an additional means of accounting for the distribution of man over the vast plain of the Pacific. The South Sea Islands have, in all past time, been, like the ancient Greek democracies, the scene of frequent, if not perpetual, civil war; and the cruel practice of the victors has generally, if not uniformly, been to exterminate the vanquished, if possible, either by putting them to death as soon as they caught them on land, or by forcing them out to sea.

In the year 1799, when Finow, a Friendly Island chief, acquired the supreme power in that group of islands, after a bloody and calamitous civil war, in which his enemies were completely overpowered, the barbarian forced a number of the vanquished to embark in their canoes and put to sea; and during the revolution that issued in the subversion of paganism in Tahiti the rebel chiefs threatened to treat the English missionaries and their families in a similar way.

On glancing at the chart of the Pacific Ocean, it would seem probable that the first inhabitants of New Zealand had reached that island from the Friendly Islands, the nearest to New Zealand of all the other Polynesian groups, and distant only about eight or nine hundred miles to the northward. The internal evidence afforded by the dialect of New Zealand confirms this presumption, as it bears a much closer resemblance to that of the Friendly than to that of the more distant Society Islands; while the tradition of the natives is that the first inhabitants of the island arrived from the northward. Supposing, then, that New Zealand had been originally discovered and taken possession of by a party that had sailed, perhaps, on some short voyage, from the island of Tonga, the principal island in the Friendly Island group, and been accidentally driven to sea, or by a party of vanquished islanders, who had been driven out to sea by their ruthless conquerers, it is evident that, coming within the Tropics, there would be no word in their language to denote such a substance as *snow*. On seeing the strange substance, therefore, for the first time after their arrival in New Zealand, and ascertaining its coldness and insipidity,

it would be quite natural for them to exclaim, when sorrowfully recollecting the comfortable country they had left for ever, "*Tongadiro!*" Tonga lost; This is the singular phrase in the New Zealand dialect, for snow.

Whether the first inhabitants of New Zealand had been driven from their native island by accident, or by the fortune of war, it is impossible to ascertain. There is one singular feature, however, in the political aspect of that portion of the Polynesian nation which I conceive throws some light on the history of their original migration, as well as on the origin of a horrible practice which has certainly been extensively prevalent in that island, as well as in most of the other islands of the Pacific Ocean. The practice I allude to is that of cannibalism; and the feature in the political aspect of the island that serves to account in some measure for the origin and prevalence of that practice in New Zealand, is the absence of everything like a distinction of caste in that group of islands.

The Asiatic distinction of caste, as we shall see presently, has been developed with greater exactness in the Friendly Islands than in most of the other groups. But in the islands of New Zealand, whose first inhabitants were in all likelihood Friendly Islanders, there is no distinction of caste whatever; every New Zealander who is not a prisoner of war, *i.e.*, a slave, professing himself a *rangatira*, or gentleman. We cannot suppose, however, that a large canoe filled with natives, either hastily collected after a defeat in time of war, or proceeding on a voyage to some neighbouring island in time of peace —for it must have been by a party of natives in such circumstances that New Zealand was first discovered,—we cannot suppose that such a party of natives should have left the Friendly Islands in which a distinction of caste prevails without having persons on board of various castes. But if the wretched inmates of such a vessel had by any accident been kept so long at sea (as they must necessarily have been ere they reached New Zealand) as to have expended all their stock of provisions, their only and their miserable resource (one shudders to think of it) would have been to kill and eat one of their number. Such a thing, we know, has been done again and again even by Europeans. In such a case of direful emergency, the first victim among a party of South Sea Islanders would, doubtless, be the man of lowest caste; for the idea of putting a person of inferior caste on the same level with a noble or chief in any circumstances, would never occur to a Polynesian.

It is, therefore, highly probable, from the present state of native society in New Zealand, that the miserable wretches who first landed on that island had previously been so long at sea, that they had successively killed and eaten every person of inferior caste on board their vessel; and that ere they reached the unknown land, they had become, through absolute necessity, ferocious cannibals. That the taste for human flesh, which had been acquired in this manner by the fathers of the New Zealand nation, should afterwards have been found to minister to the desire of vengeance or been indulged in for its own sake, is not at all extraordinary. We read in the book of Job

chapter xxxi. 31, "Oh that we had of his flesh! we cannot be satisfied." And in Burckhardt's "Travels in Nubia," we find the following trait of brutality given as an illustration of the vindictive character of a Nubian tribe—"Among the Hallenga, who draw their origin from Abyssinia, a horrible custom is said to attend the revenge of blood: when the slayer has been seized by the relations of the deceased, a family feast is proclaimed, at which the murderer is brought into the midst of them, bound upon an angareyg (or sofa), and while his throat is slowly cut with a razor the blood is caught in a bowl and handed round among the guests; every one of whom is bound to drink of it at the moment the victim breathes his last."*

That cannibalism is also practised in various islands of the South Seas, where neither necessity nor the desire of vengeance can be urged in palliation of the revolting practice, cannot be doubted. About forty years since, a respectable Scotchman who had been long in command of a Government vessel out of this port, at a time when it was customary to resort to certain of the South Sea Islands for supplies of pork for the King's stores, told me that when he was lying at the Marquesas in one of his voyages to these islands, he had seen human viscera hung up for use in the same way as those of a sheep or bullock are frequently seen in England; and that, on inquiring on one occasion of an elderly woman what had become of a little orphan boy she seemed to be rearing, and to whom he had himself got somewhat attached, he was horrified to learn that the boy had been killed and eaten. Nay, he assured me that he was once offered a human finger himself as a peculiar delicacy.

In further illustration of the manner in which the South Sea Islands, and especially the solitary and remoter islands have been peopled in the course of ages past, I may state that it has been ascertained that the dialect of the Chatham Islands, situated only a few hundred miles to the eastward of New Zealand, has a much greater resemblance to that of Tahiti or the Society Islands than to that of New Zealand; but that the dialect of Aitutaki, a solitary isle, and much nearer Tahiti, is identical with that of New Zealand. The only explanation that can be given of these remarkable facts is that some canoe with a party of natives on board had been blown off the coast of Tahiti by some sudden tempest, and had after a voyage of upwards of a thousand miles, reached the Chatham Islands; and that, in precisely similar circumstances, a canoe with a party of New Zealanders on board had been blown off their own island, and had, after a voyage of perhaps still greater length, been driven upon the remote and solitary island of Aitutaki.

Taking into consideration, therefore, the fact that the state of things I have been describing has been in existence and operation in the South Sea Islands for perhaps thousands of years past, it were impossible to estimate the prodigious expenditure of human life, and

* Burckhardt's Travels in Nubia, p. 356.

the prodigious amount of human suffering at which the South Sea Islands, situated as some of them are at vast distances from the nearest islands, must have been originally peopled in the course of long ages past. Where one canoe, in the circumstances I have stated, was fortunate enough to reach some previously unknown land in the vast ocean, we may conclude that many must have been lost, after scenes of bloodshed and cannibalism had been transacted on board them at the very idea of which the imagination revolts with horror.

The next question in this inquiry is from what portion of the habitable globe has the Polynesian race been derived, and with what other family or tribe of the earth's inhabitants does it exhibit any affinity?

I would observe, therefore, before attempting to give a direct answer to this question, that there are certain writers who maintain that the Polynesians could not possibly have come from the westward or the continent of Asia from the prevalence of the easterly or trade winds of both hemispheres.

De Zuniga, a Spanish writer of some celebrity, and the author of a history of the Philippine Islands, who is followed by Mr. Ellis, long a missionary in the South Sea Islands, and the author of an interesting work entitled "Polynesian Researches," maintains that the Polynesians could never have made their way across the Pacific from the westward, in consequence of the uniform prevalence of the easterly trade wind. But the testimony of that eminent and lamented navigator La Perouse is decisive as to the invalidity of such an objection. "Westerly winds," says that eminent navigator, "*are at least as frequent* as those from the eastward in the vicinity of the Equator, in a zone of seven or eight degrees north and south; and they" (that is the winds in the equatorial regions) "are so variable that it is very little more difficult to make a voyage to the eastward than to the westward."* To the same effect, Captain (afterwards Admiral) Hunter, the second Governor of New South Wales, observes, in the narrative of his voyage from Port Jackson to Batavia, in the year 1791:—"It was very clear to me, from the winds we had experienced since we came to the northward of the Line, that at this time of the year (the end of July), and generally during the height of the south-west monsoon in the China seas, these (westerly) winds do sometimes extend far to the eastward of the Philippine Islands, and frequently blow in very heavy gales." For my own part, as to the alleged uniformity of the trade winds in the equatorial regions, the second time I crossed the Line from the northward, our vessel lost the north-east trade wind as high as the fourteenth degree of north latitude; and in crossing the Equator from the southward on a subsequent voyage (in September, 1833), we experienced a south-westerly gale of several days' continuance, after losing the south-east trade wind, which carried us as far as the sixth degree of north latitude. Nay, I have been informed by a nautical gentleman of experience that he once encountered a south-

* La Perouse's Voyages, chap. XXV.

westerly gale of twelve days' continuance considerably within the tropics.*

Having thus met and disposed of the preliminary objection as to the impossibility of the Polynesians making their way to the eastward in the face of the easterly trade winds of both hemispheres, I proceed to observe that the Polynesian race exhibits the clearest evidence of an Asiatic origin, in the following, as well as in various other particulars:—

I. Distinction of caste—the most ancient and most remarkable feature of Asiatic society—prevails in certain of the groups of Polynesia; for in certain other groups it does not exist, for reasons which I have already indicated. In Tahiti, or the Society Islands, it was formerly carried to so ridiculous an extent in the case of the royal family—all the members of which were regarded as sacred in the highest Tahitian sense of the word—that whatever any of the princes of the blood happened to touch became sacred also. If the king entered a house, the owner had to abandon it forthwith. If he walked on a footpath, it was death for a plebeian to walk on it afterwards. In benevolent consideration, therefore, of the welfare and convenience of his subjects, his Tahitian majesty, having no state carriage, was graciously pleased to be carried on men's shoulders, whenever he wished to see the world, lest he should otherwise consecrate his own highways, and render them unavailable in future for his subjects. In the Friendly Islands the several castes are still better defined; and as in India the Brahmin, or priestly, caste ranks highest, insomuch that the Grand Lama of these islands—the Tooi Tonga, as he is called—takes precedence even of the king.

The castes in India are:—1. The Brahmin, or priestly caste, whose office is to offer sacrifices, to teach the Veda, to offer gifts, and to receive presents.

2. The Kshutriya, or soldier caste, whose office is to protect the country and the Brahmins.

3. The Vishya, or merchant caste, whose office is to keep cattle, to carry on trade, to cultivate the land.

4. The Shoodra, or servile caste, whose office is to serve the Brahmins. And persons of the higher castes must not communicate with the lower in marriage, in eating, or in family friendship, on pain of degradation and the loss of all earthly connections.

In the Friendly Islands, in which the Polynesian system seems to have retained much more of its ancient features than in most of the other groups, a similar, if not the same division of society obtains. In these islands the highest caste is in like manner:—

1. The priestly caste, the heads of which are supposed to be descended from the gods: they receive presents from the lower castes, and enjoy peculiar privileges; and the other islanders testify their

* There is yet another feature of the Pacific that is favourable to passages Eastward, and this is the *Easterly Current* found near the Equator, a happy provision for navigation by the Great Creator, found equally in the Atlantic Ocean.—ED.

respect towards them by addressing them in a sort of Sanscrit or sacred language, which is not used on inferior subjects.

2. The egi, or nobles, whose office is to preside in war, and to be the rulers of the country; the king himself being of this caste.

3. The matabooles, or gentlemen, whose office it is to act as companions and counsellors to the nobles, to be masters of ceremonies and orators at public assemblies. The cadets or younger brothers and sons of this caste practice mechanical arts under the name of mooas.

4. The tooas, or lowest caste, consisting of common labourers, cooks, servants. And, in like manner as in India, the repugnance towards any intermingling of the castes is so strong that if an individual of one of the higher castes has children by a wife or concubine of one of the lower, the children must be put to death to prevent the degradation of the family.

II. The singular institution of *taboo*, which contains universally in the South Sea Islands, is evidently also of Asiatic origin. The word *taboo* is nearly equivalent to the Latin *sacer*, and the Greek *anathema*, signifying either *sacred* or *accursed*, *holy* or *unclean*. Under the Levitical law, the show-bread was *taboo*, or forbidden to all but the priests. The leper was also *taboo*, for his touch communicated ceremonial pollution. The Jews pronounced the former *holy*—the Romans would have said, *sacer diis cælestibus;* the latter they pronounced *unclean*—the Romans would have said, *sacer diis infernis*. In short, the Polynesian *taboo* extends to persons, places, and things; and whatever is subjected either to its temporary or to its permanent operation thereby acquires a character of sacredness in the eye of the South Sea islanders, which it were death to disregard. In New Zealand, for instance, a woman engaged in nursing is *taboo*, and forbidden, under pain of death, to touch the food which she eats with her own hands; and I recollect the case of a woman who had violated this prohibition, about forty years since, by eating a piece of fern root in the mode forbidden by the law, being killed and eaten.

In some cases, indeed, the *taboo* appears to have been a wise and politic institution. After those national festivals that are so frequent in the South Sea Islands, and at which such vast quantities of provisions are consumed as to threaten a general famine, *taboo* is laid upon certain articles of food, perhaps for a period of six months, and a supply is thus reserved for the future. In the islands towards the north certain fruit-bearing trees, and in New Zealand certain plats of *kumara* or sweet potatoes are *tabooed* every season. The produce of these trees or plats is gathered in the time of harvest, and distributed among the people. And in New Zealand, evidently to guard against the events of war and the pressure of famine, the seed potatoes are always separated from the rest of the stock at the time of ingathering, and placed in a storehouse which is *tabooed;* and any person found stealing from such a house is punished with death.

It may doubtless be difficult to account for so singular an institution as the Polynesian taboo; but its Asiatic origin is evident and indubitable. Its influence and operation may be traced from the Straits

of Malacca across the whole continent of Asia to the Sea of Tiberias and the isles of Greece. In Ionia, in Hindostan, and in Tahiti, the person, the place, or the thing that was subjected to the influence of the mysterious taboo, was thenceforth, in the words of the poet, *auguriis patrum, et prisca formidine sacrum*, "abstracted from the common usages of life, by a superstitious dread, the result of ancient religious observances."

III. Numerous Asiatic customs and observances are practised in the South Sea Islands as well as in the Indian Archipelago, which closely adjoins the continent of Asia, and must therefore have been originally peopled from it.

To instance only a few of these—in Tahiti, as in Bengal, women are not allowed to eat with their husbands, or to partake of certain articles of food which are indiscriminately eaten by their lords and masters. The general posture in sitting is that of the Asiatics—on the ground, cross-legged; and in the Friendly Islands, as in the kingdom of Siam and in other Eastern countries, it is deemed most respectful to sit in the presence of the sovereign. The New Zealanders and Friendly Islanders salute each other by touching noses—a ceremony which is not unknown in Eastern Asia; and in the island of Tonga there is a game called *hico*, which consists in throwing up and keeping in the air a number of balls, as is still practised by the Indian and Chinese jugglers.

Nay, similar modes of thinking, and corresponding peculiarities of action, are found to prevail both in Asia and in the South Sea Islands. The New Zealanders, for example, uniformly ascribe internal maladies to the anger of some atua or divinity, who is supposed to be gnawing the patient's viscera. In such cases, therefore, instead of administering anything in the shape of medicine, the priest or soothsayer is consulted, who, after certain divinations, probably pronounces the patient given over to the anger of the god, and then tabooes or excommunicates him; after which he is removed to a solitary house in the neighbourhood, and left to die, like the aged or sick Hindoo on the banks of the Ganges; no person being permitted to hold further communication with him, or to supply him with provisions. It is singular, indeed, that a similar idea, and a somewhat similar practice, in regard to the treatment of diseases, should have obtained even among the ancient Greeks. We learn from Homer that when the Grecian army under the walls of Troy was afflicted with an epidemical disease, Machaon and Podalirius, the surgeons-general of the forces, were not asked their opinion in the council of the chiefs, either as to its cause or to the treatment to be adopted for its cure. Chalcas, the soothsayer, was the only person consulted respecting it; and, like a genuine New Zealand ariki, that very sensible person ascribed the disease to the vengeance of the far-darting Apollo.

In the Fiji Islands, the principal wife must be strangled at the husband's death, and buried along with him—a practice evidently borrowed from the suttees of Hindostan. The same practice obtained also in the Friendly Islands, in regard to the principal wife of the Tooi-Tonga, or chief priest of these islands.

It is observed by Mr. Marsden in his History of Sumatra (page 43), "That the original clothing of the Sumatrans is the same with that found by navigators in the South Sea Islands, and in Europe generally called Otaheitan cloth." And in the account of his voyage from Port Jackson to Batavia, in the year 1791, Captain Hunter observes, in regard to the Duke of York's Island, situated to the westward of New Ireland, "that most of the natives chew the beetle (betel), and with it used the chenam and a leaf, *as practised in the East Indies*, by which the mouth appeared very red, and their teeth, after a time, became black." "It may be allowed me to remark," says Mr. Marsden, when speaking of the inhabitants of the Pelew Islands, "that these are the most eastern people of whom the practice of chewing *betel* has been mentioned; nor indeed does it appear that either the nut *(areca)* or the leaf *(piper betel)* is the produce of the South Sea Islands."* The island, however, in which the practice has been observed by Captain Hunter, the highly-competent observer I have just cited, is situated 20 degrees of longitude, or about 1,400 miles eastward of the Pelew Islands—a most remarkable and instructive fact, as it shows us, beyond the possibility of a doubt, from whence those peculiar customs and observances of the South Sea Islanders, which they practise in common with the inhabitants of Eastern Asia and the Indian Archipelago, have been derived, and how they have travelled to the eastward in ages past.

Captain Hovell, late of the *Young Australian*, and now a prisoner at Berrima, has told me that he had observed the practice of chewing the betel root in Bank's Islands, situated in 170° W. longitude, and in 13° S. latitude, that is considerably farther east than the island mentioned by Admiral Hunter.

The general tradition of the South Sea Islanders, I mean of those inhabiting the groups of the Southern Pacific, is that the first inhabitants of the islands came from the northward; Bolotoo, the Paradise of the Friendly Islands, being supposed to be in that direction. In confirmation of this remark, it may be observed that the word *Tonga*, the name of the principal island of that group—signifies *east* both in the Polynesian and Chinese languages; for that designation will doubtless appear peculiarly appropriate as the name of an island which its first discoverers and inhabitants had reached from the westward.

IV. But the evidence afforded by the Polynesian language, in regard to the origin of the South Sea Islanders, is still stronger, and less open to objection. "Language," says the celebrated Horne Tooke, "cannot lie; and from the language of every nation, we may with certainty collect its origin." "The similitude and derivation of languages," observes Dr. Johnson, "afford the most indubitable proof of the traduction of nations and the genealogy of mankind; they add physical certainty to historical evidence, and often supply the only evidences of ancient emigrations and of the revolutions of ages, which have left no written monuments behind them."

* Marsden's Miscellaneous Works. London, 1834.

The identity of the languages spoken in the different groups of the South Sea Islands was observed by Captain Cook and his fellow voyagers; and the remarkable resemblance between these languages and the Indian Archipelago was also remarked. "In the general character, particular form, and genius of the innumerable languages spoken within the limits of the Indian Islands," observes Mr. Marsden, "there is a remarkable resemblance, while all of them differ widely from those of every other portion of the world. This observation extends to every country, from the north-west extremity of Sumatra to the western shores of New Guinea, and may be even carried to Madagascar on the west, the Philippines to the east, and the remoter of Cook's discoveries to the south."*

"One original language," observes Sir Stamford Raffles, "seems in a very remote period, to have pervaded the whole (Indian) Archipelago, and to have spread (perhaps with the population) towards Madagascar on one side and the islands in the South Sea on the other; but in the proportion that we find any of these tribes more highly advanced in the arts of civilised life than the other, in nearly the same proportion do we find the language enriched by a corresponding accession of Sanscrit terms, directing us at once to the source from whence civilisation flowed towards these regions."†

"At first," says the unfortunate La Perouse, "we perceived no difference between the language of the people of the Navigators' Islands and that of the people of the Society and Friendly Islands, the vocabularies of which we had with us; but a closer examination taught us that they spoke a dialect of the same tongue. A fact which may tend to prove this, and which confirms the opinion of the English respecting the origin of these people is, that a young Manilese servant, who was born in the province of Tagayan, on the north of Manila, *understood and interpreted to us most* of their words. Now it is known that the Tagayan, Talgal, and all the dialects of the Philippine Islands in general, *are derived from the Malay;* and this language, more widely spread than those of the Greeks and Romans were, is common to the numerous tribes that inhabit the islands of the South Sea. To me it appears demonstrated, that these different nations are derived from Malay colonies who conquered these islands at very remote periods; and perhaps even the Chinese and Egyptians, whose antiquity is so much vaunted, are modern compared to these.‡

In confirmation of this idea of the great French navigator, Mr. Marsden informs us that "upon analysing the list of thirty-five Malayan words, of the simplest and most genuine character, twenty will be found to correspond with the Polynesian generally, seven with a small portion of the dialects, and seven, as far as our present knowledge extends, seems to be peculiar to the Malayan itself."§

* "Archæologia," vol. vi., page 154.
† History of Java, by Sir Stamford Raffles, page 369.
‡ La Perouse's Voyages, chap. xxv.
§ Marsden's Miscellaneous Works, page 8.

The following are a few instances, such as Mr. Marsden refers to, of the unmistakeable affinity of the Malayan and Polynesian language :—

| English. | Malay. | Polynesian. |
|---|---|---|
| The eye | Mata (universally) | Mata (universally) |
| To eat | Macan (Javanese Mangan) | Maa (strong guttural, marking the suppression of consonantal sound) |
| To kill | Matté | Matté |
| A bird | Manu (Princes Island Manuck | Manu |
| Fish | Ika (Javanese Iwa) | Ika |
| A louse | Coutou | Outou |
| Water | Vai (Amboynese) | Wai, or Vai |
| The foot | Tapa an | Tapao |
| A mosquito | Gnammuck | Nammou |
| To scratch | Gara | Hearu |
| Coccos roots | Talar | Taro, and Talo |
| A hog | Buai (Achinese) | Buaa |
| Inland | Utna | Uta |
| Name | Ingoa | Ingoa |
| Hair | Ru (Island of Savu) | Huru |
| Fire | Apaui (Achinese) | Auai, obsolete Apuai (Tahitian) |
| Man | Orang | Ora (guttural) Tahitian) |
| Gentleman | | Rangatira (New Zealand) |
| Two | Dua | Rua, Dua (New Zealand) |
| Three | Tolu | Toru, Tolu |
| Five | Sima | Dima, Rima (Tahitian) |
| Six | Annam | Ono (New Zealand) |
| Seven | Pitt (Javanese) | Hitu, Witu (New Zealand) |
| Eight | Wolo (Javanese) | Waru, Wadu (New Zealand) |
| Nine | Siwah (Lampong) | Iva |

As a specimen of the manner in which the dialectic differences of the Polynesian language are developed, let us take the New Zealand word *Tangata*, signifying *man*, which I conceive is the oldest or original form of the word; in the Tahitian dialect, however, it becomes Taa' ta, with a strong guttural sound supplying the omission of the nasal sound. But in the dialect of the Sandwich Islands, in which the letter *k* is substituted for the *t* of the Southern group, the word becomes *Kanaka*, a word with which we are all rather familiar at present.

There is therefore abundant reason to believe that the South Sea Islanders, and the various tribes of Malays inhabiting the islands of the Indian Archipelago are of kindred origin, and that the languages of all those islanders are merely dialects of the same ancient and primitive tongue. Such, at least, is the opinion of two of the most eminent Oriental scholars that have ever adorned with their talents and learning our Indian empire—I mean the late Dr. Leyden, as expressed in a most interesting essay "On the Languages and Literature of the Indo-Chinese nations" published in the tenth volume of the "Asiatic Researches," and of the late John Crawford, Esq., in his very valuable "History of the Indian Archipelago." It was also

the opinion of that eminent German scholar, the late Baron William Humboldt, whose great posthumous work in three quarto volumes in German, published under the auspices of the Royal Academy of Berlin, by his illustrious brother, Baron Alexander Humboldt, and entitled *Ueberdie Kawi Sprache ininseln Java* (on the Kawi language of the island of Java) is a perfect mine of wealth in all questions relating to the languages of the east and of Polynesia I may be permitted to add, that at my suggestion a copy of that valuable work has recently been procured for our Parliamentary Library. Nay, in allusion to the common origin of the South Sea Islands and Malay nations, and their original derivation from the Indo-Chinese nations of Eastern Asia, that eminent orientalist has a long dissertation in the work I have just mentioned, showing how a dissyllabic or polysyllabic language is developed out of a monosyllable, which it is well known is the general character of the languages of the Indo-Chinese nations.

There is one remarkable peculiarity in the habitudes of thinking among the Indo-Chinese nations, which is also observable among the Malayan and Polynesian tribes, but which, as far as my own knowledge extends, is altogether unknown among the nations—whether Asiatic or European—to the westward of the Ganges. That remarkable peculiarity consists in their having a language of ceremony or deference distinct from the language of common life. "In addition to these simple pronouns," says Dr. Leyden, in the essay referred to above, "there are various others which indicate rank and situation, as in Malayu, Chinese, and the monosyllable languages in general, which have all of them paid peculiar attention to the language of ceremony, in addressing superiors, inferiors, and equals." "The distinction of an ordinary language and one of ceremony," observes Mr. Marsden, "exists, to a certain degree, among the Malays in practice, although not systematically or compulsorily as we find it to be the usage among the Javanese."* "Among the latter," observes Sir Stamford Raffles, in a passage quoted by Mr. Marsden, "nearly one-half of the words in the vernacular language have their corresponding term in the polite language, without a knowledge of which no one dare address a superior." "This distinction," observes Mr. Crawford, in a passage quoted by Mr. Marsden, "by no means implies a court or polished language, opposed to a vulgar or popular one; for both are equally polite and cultivated, and all depends on the relations in which the speakers stand to each other, as they happen to be inferior or superior. A servant addresses his master in the language of deference, a child his parent, a wife her husband (if there be much disparity in their ages), and the courtier his prince. The superior replies in the ordinary dialect."† But this remarkable peculiarity is equally observable in those of the South Sea Islands, in which there is anything like a regular government or a distinction of ranks. I have already alluded to it in enumerating the various castes into which society is divided in the Friendly Islands; it was also prevalent in Tahiti, and it doubtless

* Miscellaneous Works, page 21. † Miscellaneous Works, page 23.

affords a strong presumptive evidence of an ancient affinity between the Polynesian and Chinese, or Indo-Chinese nations.

The farthest east of Captain Cook's discoveries in the Pacific was Easter Island, situated in latitude 27·6 S., and in longitude 109·17 W. In that remote island he found the same Polynesian race, speaking the same primitive language, and practising the same singular customs and institutions as he had witnessed elsewhere in the more westerly groups. They had thus reached in their wonderful easterly migrations a point upwards of a hundred and twenty degrees of longitude, or 7200 nautical miles from their original point of departure in the Indian Archipelago. One is almost overpowered at the vastness of such an idea; but here it stands out incontestably in actual fact. In Easter Island, as is known to be the case also in certain other of the Polynesian Isles, the great navigator found incontestable evidences of an extinct civilisation, in certain colossal architectural remains, which the present natives, unable to conceive of their being the work of mere men, ascribe to the Atuas or gods.

It is thus evident, beyond the possibility of doubt, that the races of men who had traversed successively so vast an extent of ocean, and settled such an infinity of isles, were at one time in a much higher state of civilisation, and much better acquainted with the arts of life, than their present representatives and descendants. They had evidently brought along with them from their original point of departure in the far west a far higher state of civilisation than has existed anywhere in the South Sea Islands for ages past. In the isolated state of the different groups of islands, and especially in the normal state of incessant warfare that has prevailed in all of them, it was not to be wondered at that the light of a higher civilisation which had characterised the earlier ages of their existence should have been gradually obscured, and at length extinguished. In the island of Tongataboo, in the Friendly Islands group, there is an ancient monument known as the tomb of Toobo Tooi, some famous chief of the olden time, constructed of immense blocks of stone that must have been brought from some other island in the group, and rafted across the sea, as the island of Tongataboo, or Tonga the holy, is entirely of coral formation, has no stone of any kind on its perfectly level surface. The construction of such a monument implies a high degree of mechanical skill on the part of the ancient Polynesians, and is altogether incomprehensible as a work of man by their semi-barbarous descendants. In the island of Ascension also, an island situated in the Northern Pacific, in latitude 7 degrees N., I have been informed by a gentleman of this city who once visited the island as the surgeon of a vessel, there are colossal architectural remains, in the form of a wall of thirty feet in height, constructed of immense blocks, and apparently intended for the protection and defence of a commodious harbour.*

Although it were impossible to fix the exact time when the fathers of the Polynesian nation, issuing forth from the Indian Archipelago,

* Were not remains of the same kind recently found in Easter Island.—ED.

launched out, or rather were driven out by some violent westerly gale, into the boundless Pacific, there are two distinct notes of time that may serve to guide us in our inquiries on the subject. The language of the Malays, which I have shewn is of cognate origin with the Polynesian, has had two different infusions into it from foreign tongues, at periods very far distant from each other. The latest of these, which I shall dispose of first, is an Arabic infusion, coeval, as I conceive, with the Saracen invasion of the East, and the conversion of the Malays to the religion of Mahomet. There are hundreds of Arabic words, generally of a rough consonantal character, imbedded, so to speak, in the Malay language, which, like those of Polynesia, is peculiarly soft and vocalic; these foreign words resembling a number of rough detached pebbles frozen into a sheet of ice. Unacquainted with this historical fact, Mr. Ellis, the author of the work entitled "Polynesian Researches," adduces in support of his own unfounded theory, and that of the Spaniard, De Zuniga, whom he follows, that the South Sea Islanders could not have come from the west, the Malay word *shems*, the sun, as altogether unlike the corresponding Polynesian word *ra* or *la*. But *shems* is a pure Arabic word, the cognate of the Hebrew word *shemesh*, as in the Scripture name *Bethshemesh*, the house of the sun, and is doubtless coeval as a Malay word with the Mahometan irruption, perhaps a thousand years since.

It is evident, therefore, that the Polynesian migration from the Indian Archipelago is of a much more ancient date than that of the Mahometan irruption; for there are no Arabic words in the language of the South Sea Islands. But in a passage I have already quoted, Sir Stamford Raffles speaks of a much more ancient and foreign infusion, which had introduced into the Malayan branch of the one original language of the Indian Archipelago and Polynesia, thousands of words of Sanscrit origin, indicating, in his opinion, the source from whence civilisation had flowed into these regions. But the Polynesian migration from the Archipelago had taken place before this very ancient Sanscrit infusion into the Malay language had commenced; for there is no evidence of such an infusion in the Polynesian languages. That migration, therefore, must have been effected in a period of the remotest antiquity,—in all likelihood long ages before the Argonautic Expedition had gone forth in search of the Golden Fleece, or Agamemnon, and the Greeks had sat down under the walls of Troy. It is matter of history that, in the ages immediately after the deluge, civilisation had advanced simultaneously into Egypt on the one hand, and to Eastern Asia on the other. The learned Jesuit, Du Halde, author of a famous "History of China," informs us, on the authority of the Chinese annals, that the foundations of that vast empire were laid about two hundred years after the flood; and there is reason to believe that at so early a period in the history of man the comparative civilisation of the age had reached the south-eastern coasts of Asia, and that that one primitive language, of which Sir Stamford Raffles speaks as the common parent of the Malayan and Polynesian tongues, was then spoken in the Indian Archipelago.

We are, therefore, warranted to consider the Polynesian nation, scattered as it has been for untold ages over the multitude of the isles of the vast Pacific Ocean, as one of the most ancient and unmixed divisions of the family of man; and there is reason to believe that the inquiries of the future literati of Australia will one day be directed with intense interest to the investigation of this very interesting subject. I am happy, accordingly, to inform the Society, in conclusion, that provision has long since been made for the prosecution of such inquiries in this colony; for a near relative of mine the late Mr. John Hunter Baillie, who died in this city fifteen years since, left the whole of his property, probably amounting to not less than ten thousand pounds, for the endowment of two professorships in the forthcoming Presbyterian College, one of which is for the Oriental and Polynesian languages.

I propose to follow up this lecture, if the Society shall approve, with a second, demonstrating, as I conceive I shall be able to do to the satisfaction of all intelligent and candid persons, that it was the Polynesian race who first discovered and progressively settled the vast continent of America. It would have been impracticable, however, to have made that demonstration either intelligible or satisfactory, without the previous disquisitions of the present lecture.

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## Description of the Shores of the Strait of San Bernadino, Philippine Islands.

[Translated from the Anuario de la Direccion de Hydrografia, Ano VII., Madrid, for 1869.]

### Continuation of the Port of Sorsogon.

*(Continued from page 598, Vol. XXXVIII.)*

*Island Burungburungang.*—About one third up this strait is the low islet of Burungburungang, and extending N. and S., inclining about half a point to the N.W. and forming, with the above said coast, a very narrow channel, but in which there is a depth of twenty-five to thirty fathoms, coral bottom; and the coast makes a small elbow, one part continuing N.E. and S.W., and the other N.W. and S.E.

In the middle of this islet there is an extensive bay, although difficult to enter.

The highest part of this islet is that to the south, both ends of it have their reefs projecting a little, and formed of loose stones.

*Rips in the channel between Luzon and islet Burungburungang.*—With wind and tide opposed there is a considerable break in the mouth of this channel, although it becomes less where it is wider, and again is heavy where it narrows. Near the reefs of the Luzon shore it is also met with, and leaving one of these passes between it and the shore, soon a reef is found continuing as far as the bay of Magnoe.

Proceeding from the end of it to the S.W. leads to the middle of a beach west of the bay of Culasi; and on this course twenty-five, twenty-eight, thirty, sixteen, and eleven fathoms are found on a bottom of muddy sand: the last eleven fathoms is near the beach.

*Bay of Culasi.*—This bay is formed by point Culasi, and the headland of the northern part of point Babatgun. In the midst of it on the west it has a small mouth, the point of which has a bank of sand coral.

The edge of this bank and the north point leaves a very narrow channel which leads to a spacious basin sheltered from all winds. This channel at high water has but one fathom in it, but inside the depth increases. The shore of it is nearly every where formed of mangroves, and the rest of mud, somewhat stiff, covered with fine sand.

*Bay between point Culasi and the headland of Babatgun.*—The bay formed by point Culasi and the headland of Babatgun (which is the southernmost point of Luzon) will receive vessels of any size. It has shelter from all winds excepting those from S.S.E. and S.E., but something more open to the eastward. From this quarter it is sheltered by the island of Calitan. To the north and N.E. it is also protected by the islands Juac, Ticlin, and Burungburungang, which are close by it.

*Winds which are inconvenient in this bay.*—The bay is sheltered from north by the west, round to south by the coast of Luzon that forms it, and the winds from S.S.E. to S.E. by E. are all to which it is exposed.

*Points Silanga and Subie.*—Point Silanga and another to the east, called Subie form a sheltered port in an elbow in the coast to the south of isle Juac, the second of the Ticlines.

*Port formed by these points.*—Although this port is well sheltered, yet the narrowness of its mouth and small depth renders it only fit for small craft.

*Isle Juac.*—In the elbow of isle Juac on the northern beach of this port there is a little shallow bay which communicates with an estuary so large (although not deep) that it occupies nearly all the N.W. part of the island.

*Rocks off this island.*—The northern end of this island (E.N.E. and W.S.W.) has a reef of rocks off it which continues round its western part, reaching almost its eastern side; and this again has another which follows the outline of its coast.

*Isles Calintan and Juac.*—These islands of the Ticlines are mountainous and abound with guano. The channel which they form with the eastern part of Burungburungang is both wide and deep enough for any vessel to pass through, as long as she has sufficient wind and can stem the current.

*Bay of Calintan island.*—Calintan island has a rock on its eastern side which is so much detached from it, as apparently to leave a channel. At its southern end it has a little bay about a cable and a half wide, but not deep: the shoal outside of it is of the same character nearly as the rest on these coasts, sandy and rocky: and at two-thirds of a cable from the shore there are three fathoms.

*Ticlin island.*—This which is the northernmost of these islands has good anchorage off its S.W. shore, about two cables. At its southern point it has a shoal which extends out S.E., and as its neighbouring isle, Juac, has another extending in the contrary direction, they leave but a small channel between them, but which is used by the trading craft of the country.

*Bay of Magnoe.*—Continuing through the strait of Ticlines, near the coast of Luzon, we come to the bay of Magnoe, but in order to enter we cannot at once double point Carangan which is its southern extreme, for it is necessary to continue about two-thirds of a mile to the N.E. to avoid a rocky shoal which at low water has no more than two feet of water on it.

The bay is not large, but may afford anchorage to any vessel, whether the weather may be fine or blowing between north and S.S.W.; but to all other winds she would be exposed and subject to a considerable swell.

*Town of Magnoe.*—The town is very small and poor. To the northward it has a river and may afford water and a few provisions.

*Point Padan.*—Having passed point Padan, which is next to the E.N.E. from the north point of the bay of Magnoe, there is neither bay nor place for anchorage as far as that of Albay. The whole coast is composed of ravines with rocky terminations or sandy beaches, and although off these the ground may be clean, at some distance there is a rocky ridge which extends from Point Padan as far as the shoals of Montufar, leaving only some few breaks or cuts which the pilots, who know them, pass through in their small craft for Bulusam, or for any other part of the coast, inside the ridge.

*Islet of San Bernandino.*—The islet of San Bernandino is in latitude 12° 46′ 22″ N., and east of Manila 3° 20′ 20″; it has a rocky shoal to the N.N.E. not far off. It is covered with trees, many of them being ebano (ebony) of a good quality.

*Baliquatro isles.*—The Baliquatro isles are various and form channels with isle Tamar: between them there are some channels which vessels may use: but as they are not yet well known and narrow, much care is required when using them. There is good anchorage in their vicinity.

*Bay of Baliquatro.*—The bay of Baliquatro is no desirable anchorage and should only be taken in case of necessity, for it is very deep and with a steep shore, besides having a rocky bottom here and there.

Continuing from point Balienatro to the southward, along the west shore of the isle Tamar, several high points are found with rocky boulders at their base extending out considerably seaward.

*Point Lepata and Quinibaran.*—Between points Lepata and Quinibaran there is a bay which, although having little depth, affords good anchorage, particularly in the season of the N.E. winds, and although at a good distance from it, large rocks are scattered over the sandy bottom, yet when nearer the coast these are not so numerous, and the ground is much cleaner. In the interior of the bay there is a rivulet from which a vessel may complete her water.

*The River Mobo.*—About S.E. from point Quinabararan, a mile and a quarter, is the river Mobo; formed by the waters of a beautiful cascade in the ravine of two very high mountains. Its banks are covered with trees and Nipa, and its course is about E.N.E. with some reaches more easterly, so that from this cascade the mouth of the river is not seen. Its extent would be about one-third of a mile, and its breadth diminishes to the inside, where it is about twenty fathoms across. In the middle of it the depth is about ten fathoms sand, and a launch might go up to the foot of the cascade and fill her casks. Indeed, vessels of any draft might enter this river but for the mouth, which is so narrow that from point to point is only a cable across. Then again, there is unfortunately a reef of rocks that extends northward from the south, and which reduces the entrance to some fifteen fathoms, in which contracted space not more than two fathoms are found at low water.

The shores of isle Samar at this part are formed by the accessories of a chain of high mountains covered with trees, the dark green verdure of which presents a rather gloomy aspect. These shores are sandy and rocky, and the mangroves of it extend to the sea. Navigating about half a mile from it seven and eight fathoms are found on ground of the same nature.

*Little port of Canaguaion.*—About four miles S.S.E. of the river Mobo is the little port of Canaguaion. It may be used by any vessel in case of necessity, either for shelter from an enemy or to avoid the effects of a gale, especially should this threaten from the N.E. or S.E. quarters. It is formed by a bend in the coast and two islets in its mouth that leaves two narrow channels for entering and leaving.

These channels are tolerably deep with good ground, and the same are found in the middle of the port: yet the space for anchorage in them is very limited, and it will be found that the anchorage is between the islets and the coast of Samar, or in the vicinity of the Samar coast at a cable west from it, and a quarter of a cable north of the river. Beyond this and standing off N.W. or W.N.W. it is necessary to be careful of rocks and shoals.

The large mouth which is to the west is from one and a half to two cables wide. In that part corresponding to the coast of Samar and opposite to the first small islet there is a stream from which good water may be had.

*Isle Dalumpiry.*—The island Dalumpiry (commonly called isle Puercos) has no residents, it is low, covered with trees and surrounded by a sandy shore, scattered over with rocks. There is anchorage on all sides of it, but it is somewhat steep and of that nature of ground with more or less rock in it. The island in its widest part is about a league across, and seems to have plenty of animals, and especially the mountain hog.

In the middle of this island there is a large lagoon abounding with alligators. On this beach good water is found by forming wells, and in the southern part is a rocky flat extending to the S.E. for above a mile, with five, six, eight, and ten fathoms on it, and at this distance there is twenty fathoms.

The channel between this island and Samar is two or three miles across and very deep.

*Isle Capul.*—This island is larger than that of Dalumpiry, and higher also, particularly to the west of the town of Abai, which is a third part of its length north and south on its eastern side.

The shores of the sea about here are sandy, but all the rest of the island has an irregular shore with rocky breaks, and it is every where so steep that no vessel should attempt to anchor any where off it, unless obliged to do so.

*Bay of Capul and the only anchorage off this island.*—In the southern extreme there is a little bay with a sandy beach, which seems to offer the only anchorage a vessel can take with safety.

This bay is easy to know coming from west or east, because this part of it is bounded by a higher rocky shore, and has a pyramidical or needle rock which is very conspicuous.

*The Diamond rock.*—About S.E. of this little bay, two miles long, is a rocky shoal, which has derived its name from the ship *San Josef*, grounded on it, called the Diamond.

Those navigators who are obliged by the current to pass between Capul and Dalumpiry, must bear in mind that the marks for navigating clear of this rock are as follows:—When the S.W. point of Capul is in line with the highest part of the height of Gate or Bulan next to it bears N. 38° W., and when the channel between the islets Naranjo Escarpado and the Aguada, as soon as the southernmost part of Capul is passed about one mile and a half off, steer for the southernmost point of the said Naranjo Escarpado, which course will be west, but be cautious of the change with respect to the current.

*Naranjo islets*—This is the name of a group of islets close to each other, and one which is somewhat removed from them to the S.E. is distinguished by the name "Detached."

These islets are for the most part rocky, of a moderate height with sandy beaches, having channels between them, which being deep and clean may be freely navigated by any vessels. But those which have no sweeps will risk being set by the currents, which are various and strong on the reefs and points of the islets. Nevertheless, throughout all of them they have a proportional depth to their size, not more than thirty-two fathoms; and thus, although they are all rocky, a vessel under the influence of the current may have recourse to anchoring to avoid being drifted ashore.

## Description of the Isle of Ticao.

The isle of Ticao has no good harbour whatever. But on its eastern side there is the sand bank which extends along it.

*Port of San Jacinto.*—The port of San Jacinto on the eastern coast has good anchorage; but it is very small, and its entrance very narrow between reefs, the extremes of which are under water; and even in its interior a vessel is not entirely sheltered.

*Port San Miguel.*—In its northern extreme is port San Miguel,

which is bad from being open to N.W.; but it has good depth; its eastern coast is steep, and the neighbouring islands to the west and the coast to the southward are all garnished with sunken rocks. Still the situation of this port renders it of service; for a large vessel being hampered in a squall with point San Miguel, or having no time to take port San Jacinto, or any part of Masbate, might find safety in San Miguel.

*West coast of Ticao.*—Of the western coast of Ticao little as yet is known, but it appears rocky and without anchorage.

To the S.E. of the southern entrance there is a waterfall, and between that and the point San Gabriel of isle Masbate there are several islets which have good anchorage in the channels btween them up to twenty-five fathoms. The cleanest appears to be that of sixteen, fifteen, and eighteen fathoms, formed by the southernmost of the islets with point San Gabriel, although it has a small reef extending to N.N.W.

## Description of Isle Masbate.

The N.E. part of Masbate from the Bay of Mobo as far as Port Magdalena has anchoring ground of thirty to thirty-five fathoms at half-a-mile off shore.

*Port of Magdalena.*—Port of Magdalena is very small but is an excellent anchorage, for notwithstanding it may be open to the N.W. it may be considered safe in all seasons. Even a large vessel may be secured with as many fastenings as required to trees, and although she might be blown on shore with the few winds to which it is exposed she would come to no harm on mud.

*Shore of the Port: Watering Place.*—The principal portion of the shores of the Port is formed of a beach of coarse sand, and the outside points throw out reefs of which ships must be very careful, particularly that to the N.E. In each of the eastern and western angles of the port there is a small stream of fresh water, but to obtain this good it is necessary to take it from some distance up them. The beach at the head of the port has some shoals off it; and the land surrounding the whole port is of a good moderate height covered with impenetrable forest.

*Town of Balino.*—The margin of the port has no settlement, but about a mile and a half to the westward is the town of Balino containing about eighty families, in the inlet of which there is shelter for small boats, and a small river. Some vegetables, fowls, and honey are all that is to be had there.

*Port of Lanang.*—The coast as far as the port of Lanang is steep, and the land forming the entrance of it has some mounds of a reddish coloured earth, from which it appears to have obtained its name. The port is of large extent: the entrance of it is very wide, but it is still necessary for a ship entering it to be careful of the Eastern point, which has a rocky danger off it and throws out a reef to the northward a quarter of a mile long; the N.W. point has also a reef off it but of small extent.

*River.*—In the middle of the port and in its northern, western, and southern parts, there is very good anchorage. And in the latter is the mouth of a good sized river, in which there is as much as five to ten fathoms mud. Inside of it there is also a bay with four fathoms mud that would afford good shelter to a large ship, that is in the western part of it. But in the eastern there is no depth.

*Character of Port Lanang.*—Speaking correctly, the Port of Lanang or Barrera is but a deep bay, with various lesser bays of good anchorage, having good beaches; and on all the rest of its shores the trees (generally mangroves) grow down to the water side.

The land surrounding this port is for the most part mountainous and of a red colour, from whence it seems that various handsome patterns of wood are obtained. There is no watering place in the bay, and therefore a vessel must send well up the river for it. The town is at a considerable distance from its mouth, and has thirty or twice that number of families in it from Balino, very poor in spite of the beautiful place where they are, and are washing for gold hard by. But the natives are held in such terror that the inhabitants dare not even go to fishing in the bay.

The northern extreme of Masbate appears to be free from rocks and formed of high ground.

## Isles of Sibuyan Romblon.

The Isle of Sibuyan is high; and off its eastern and western heads are rocky reefs, the western extending about two-thirds of a mile from the shore, and the eastern about a mile. Between this point and the shore of Masbate (about midway and E.N.E. of this point) is a rocky shoal on which coasting vessels frequently ground. The whole northern shore of this isle from point to point is by no means clean, but has several rocks off it. The southern shore of it from the eastern point to as far as two-thirds of this is clean, consisting of sandy beach, on which landing may be made having settlements and cultivation. It has also two small streams admitting of boats.

*Island of Romblon.*—Romblon is mostly composed of quartz and marble. At its N.W. extreme there is a port, the entrance to which has three channels formed by two islands off it. They have however unfortunately the fault of being too deep, and mostly with a rocky bottom. The interior of the port is confined but still good, having from four to sixteen fathoms sand, and in one part a quiet basin; so that a vessel pressed by an enemy can readily land her guns on elevations, and keep easily the command of the place. Moreover the entrance there is difficult on account of reefs, which extending to without the entrance, leave but a narrow channel about two cables length across: but as the depth in it is from fifteen to twenty fathoms, even a large vessel can be easily towed in, and her safety in doing so would be still greater by placing buoys on the outer ends of the reefs.

*The town of Romblon.*—The town is situated close to the shore of the port at the mountain foot. The population consists of 250 families,

and although in former days it was in a flourishing condition from the cultivation of cocoa and oil, it is at present in a very impoverished state.

### Islands of Tablas, Carabao, and others.

*Isle Tablas.*—This island is as yet but little known, but it seems to be well wooded, and among its trees has some very choice kinds. On its eastern it has a very commodious little bay into which with care, even a large vessel may enter, and obtain shelter from north to south and S.W. and W. The island of Semerara forms a good port however, it is the only shelter which the island affords from S.W. and west, for all the anchorages on this side of the island are infested with rocks. The south extreme of the isle of Tablas, and the Great and Little Carabaos with point Potol in Isle Panay, trend nearly north and south.

These three mouths have channels for large vessels, but pilots are necessary for large vessels in them on account of the strong current through them and the sunken rocks about them. There are no other anchorages than that in Potol, which has an islet sheltering from N.N.W. and the sea wind, and although not without slight risk, a vessel can find shelter in case of necessity.

*Isle Banton.*—This island is moderately high appearing steep to on all sides, and although it has a few small bays their depths are trifling and sandy. Its S.W. part throws off a reef of small extent. The town is on the N.E. part of the island, and less than that of Romblon but well laid out. And on its S.W. part, it has an islet to which the name of Bantoncillo has been given, the shore of which is tolerably clean.

*Isle Semerara* also is not high but has no known dangers off it, but there is one between it and Libagao which has from five to six fathoms over it.

*Isles Hermanas.*—The little islets called the Sisters are very low but apparently clean, and the channel formed by them is tolerably deep. Isle Maestro de Campo is of moderate height and in its S.W. part has a good port, but of small depth.

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## The Mission of the Monarch.

One of her Majesty's ships of war is now on a mission of peace, conveying the remains to its last resting place of George Peabody, one of the greatest philanthropists of his race, the real benefactor of the poor of our Metropolis, London. The *Monarch* is attended by a consort, an American ship, and the two form a highly interesting spectacle of that brotherly union of England and America now so happily established. In our desire that it may never be interrupted we say, All honour to the man who has without stint so largely befriended our working poor.

The correspondent of the *Daily News* gives the following account of the interesting proceedings.

Portsmouth, Saturday, 11th December, 1869.

The remains of Mr. Peabody were removed from Westminster Abbey this morning, brought here by special train, and received on board the *Monarch* this afternoon, and conveyed this evening to Spithead, where the ship now rides at anchor. In deference to the wishes of those who have been charged with the embarkation, the entire proceedings were conducted with as much privacy as the nature of the occasion permitted. The coffin was taken from Westminster Abbey in almost a secret manner.

At half-past seven this morning, before it was fully light, the Dean of Westminster, accompanied by Lord John Thynne, the sub-dean, met Mr. George Peabody Russell, the eldest male representative of the family, Sir Curtis Lampson and Mr. Charles Reed, M.P., the two executors, at the temporary vault, near the western entrance, and without formality of any kind, the coffin, which had been enclosed within a special case, covered with black cloth, was transferred to the private station of the London and South Western Railway Company in Westminster Bridge Road. This company, with the London, Brighton, and South Coast Company, had offered to place a special train at the disposal of the executors, without cost, and the offer first made was the one accepted.

During the morning numbers of persons lingered around the approaches to the Abbey expecting to witness the removal, the general idea being that it would be at noon. During the temporary resting of the body in its place of honour visitors in large numbers came to the Abbey to see the spot, although all that was visible was a large square of black cloth, with a few immortelles, marking the whereabouts of the vault. It was often noticed, as at least a singular coincidence, that one of the few monuments in the Abbey bearing reference to America was placed within a few yards of the late philanthropist's remains, and the singularity was heightened by the circumstance that the tablet recorded events connected with the history of Mr. Peabody's own State—Massachusetts. This monument is the memorial erected by order of "the Province of Massachusetts Bay, in New England, by an order of the great and general court, bearing date Feb. 1, 1759," to the memory of Brigadier-General Viscount Howe, who in the July of the previous year was slain while marching his Majesty's forces to Ticonderoga. The gallant officer was only thirty-three years old, and during the troubles we had at that time with the French, he had done good service not only to his own country but the New England State. It was under the shadow of this tribute to the worth of an Englishman by Massachusetts that in the dim light of this morning final homage was paid to the worth of a Massachusetts man by England.

The special train to this town left London at mid-day, under charge of Mr. Williams, and conveying, in addition to the relative and executors above mentioned, Mr. Motley, the American ambassador, Mr. Morgan, representing the trustees of the Peabody fund; and Mr.

Sowerby, the deceased's secretary. Along the line, at Guildford especially, crowds at the railway stations, as the train passed, showed their silent sympathy with its object. In Portsmouth, where the rain had been pouring for some time, few preparations had been made, willing as the inhabitants were to manifest their respect to Mr. Peabody's memory. The tempestuous weather, however, did not prevent some hundreds of spectators exposing themselves to cold and wet for an hour or two in order to witness the embarkation. The Mayor and Corporation, in civic attire, were present; otherwise there was slight display beyond what was incidental to the mustering of the officers and crew of one of the finest ships in the English navy.

The *Monarch* lay close to the railway jetty in the dockyard, and the courteous commander, Captain Commerell (a Victoria cross wearer, as well as a C.B.), allowed those who desired the privilege to see the apartment into which the coffin will be lowered when the ship gets to sea, which will most likely be some time during Monday. It is in the extreme stern of the ship, and close to—indeed, part of—the officers' cabins. The black cloth, white satin cords, festoons of black and white immortelles, either side of the bier, silver brackets with smaller candles around the chapel, and the monogram "G. P." freely interspersed, have been already described. The only recent addition is the American eagle, facing the entrance, in a device of silver, plainly showing the inscription, "E Pluribus Unum." The chapel is separated from the rest of the ship at present merely by heavy folds of black curtain, and immediately without, as if keeping watch and ward, stands one of the immense pieces of ship artillery for which the *Monarch* is famous, and whose carriage and fixtures happen to be laid down at this particular place.

Not far from the *Monarch*, but at another jetty, the American corvette, the *Plymouth*, was moored, and she will steam out of harbour on Monday, in readiness to accompany her English sister as consort. There are not many other vessels just now in harbour, although from the many permanent inhabitants of which the waters can always boast, the port never looks empty. That, however, signified but little to-day, for the merciless south-wester enveloped us in a driving veil of rain, and obscured the surroundings to such purpose that the Isle of Wight, which generally gives a clearly defined background to the scene, dimly appeared rather like a gloomy cloud than its own bright self. The spectators who clustered together within sight of the *Monarch* consequently had their powers of endurance put to the severest test.

The expected train, without halting at the station, came through the dockyard, to within a few feet of the *Monarch*. The municipal authorities lined one side of the passage; the marines of the *Monarch* and *Plymouth* the other. On board the *Monarch* there was a general muster of the crew along the edge of the level from the gangway forward. The officers mustered on the quarter deck, near the pavilion where the coffin is to remain until the ship weighs anchor.

When the train approached at three o'clock, the *Monarch* displayed her ensign half-mast and the American ensign abreast of the foretop-

mast crosstrees, the other ships in harbour imitating her example. Minute guns were fired from the *Duke of Wellington*, in the midst of which the mourners, alighting from the train, were received by Admiral Hope, as chief of the dockyard. The coffin was removed from the funeral car and borne on the shoulders of twelve men up the gangway. In spite of the studied plainness of the ceremony, and the personal discomfort of all present, these proceedings were felt to be solemn and touching. Marines and seamen from various ships were paraded at different points. The "Dead March" was commenced by the dockyard band as the procession moved forward, the marines of both countries rested on arms reversed, and the officers and men on board stood uncovered—a mark of respect paid also by the crowds on shore. A discharge of small arms from the bows of the flag-ship was added to the minute guns.

The captain of the ship, and chaplain, at the head of the gangway, received the procession, which consisted of the coffin, Mr. Motley, and Mr. Peabody Russell, Mr. Read, M.P., and Sir Curtis Lampson, Mr. Morgan, and Mr. Sowerby, Captain Acomb of the *Plymouth*, and a train of officers from both vessels. The coffin was placed on a bier in the centre of the canopy, and the mourners and a few officers assembled within the black drapery. Here, when the arrangements were concluded, his Excellency the American Minister, addressing the commander of the *Monarch*, said:—

"Sir,—The President of the United States having been informed of the death of the great philanthropist, the lamented Mr. Peabody, at once ordered a ship fron the European squadron of the United States to proceed to this country, in order to convey his remains to America. Simultaneously, her Majesty the Queen, being apprised of the sad event, gave order that one of her Majesty's ships should be appointed to perform the same office. This double honour from the respective heads of two great nations to a simple American citizen was, like his bounty to the poor of both nations, quite unprecedented. The President has yielded most cordially to the wish of the Queen, and the remains of Mr. Peabody are now to be conveyed across the Atlantic in the British vessel to his native country to be buried with his kindred, while the American national vessel will accompany her as consort on the voyage. All that was mortal, therefore, of our lamented friend was taken this morning from Westminster Abbey, where very rarely before in history did a foreigner of any nation find sepulture, whether temporarily or permanently, and has been brought to this port. As Minister of the Republic at the Court of her Majesty, I have been requested by the relatives and executors of Mr. Peabody, who are now present, to confide these his revered remains to your keeping. This duty I have now the honour of fulfilling."

Captain Commerell, in reply, said—"Mr. Motley, I accept this sacred trust, sir, in the same spirit in which you have confided it to my care; and I assure you that these remains shall be cared for and guarded by me and those around me with jealous interest, as the sacred

relics of one whose memory will ever be held dear by the people of my country."

The falling tide rendered it necessary to use expedition in getting the *Monarch* out of the port. Within a few moments after the mourners had left the deck sentries were placed before the pavilion, the hawsers were cast off, the ship's head was turned by a steam tug, and the magnificent man-of-war steamed slowly out of the harbour with all the ease of a small pleasure boat. The *Plymouth* and other ships dipped their ensigns as she passed. As an indication of her funeral errand, the masts, yards, turrets, platforms, boats, and other exposed portions of this singular ship have been invested with a funeral grey colouring, giving her a striking and, to English eyes, a strange aspect. The same alteration has been made in the appearance of the *Plymouth*, which is a smaller vessel, wood built, and mounted with Dahlgren guns.

When the *Monarch* had departed, she was visited by great numbers of persons, by whom her clipper build and smartly uniform crew were much admired. Crowds of the inhabitants of Portsmouth, who had not braved the exposure of the dockyard, assembled on the battery wall to see the *Monarch* steam to her anchorage. Owing to the state of the tides it was absolutely essential for the *Monarch* to go to Spithead this afternoon, a restriction which did not fall upon the lighter draughted American. Had the departure been deferred even for a few hours, another delay of ten days would have occurred. Some of the shops in the town were closed during the departure, bells were tolled, and flags placed at half-mast.

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The Rev. J. C. M'Ausland, rector of Cronmore, near Drogheda, has (we learn from the *Dublin Evening Mail*) received from the executors of Mr. Peabody intimation of his having bequeathed him a sum of £2,000 (less legacy duty and law expenses), in consideration of the "pleasure," as he was pleased to express it, with which he had perused a treatise of his on the Jewish subject entitled "The Hope of Israel."

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### THE SUEZ CANAL.—*Lake Lesseps probable.*

SIR—The various telegrams which arrived, gave much more flattering accounts of the Suez Canal than the letters from "our correspondents" which followed them, and the silence that has now taken place tells of difficulties which are now felt.

I noticed the few facts which convey information to those who can reason on this interesting subject. We had an account of "the very shoal water," and of "a man overboard who said he had footing, and was in no danger." This must have been simply from the fact, that the discharge into the then nearly empty Bitter Lakes, had lowered

the surface of the water in the canal to the north of it; and this would have continued for a very long time, if the dams across the channel at Serapeum had not been constructed to raise the level of the canal, so as to enable vessels drawing seventeen or eighteen feet to steam from Port Said to the Bitter Lakes. I must confess that I give the engineers more credit for discernment, than to be so very late in finding out "a rock eighty feet in length" in the dry cutting at Serapeum. I have little doubt of twenty-six feet having been excavated in depth from Port Said to the Bitter Lakes, and therefore, there ought to have been no vessels aground which only had a draught below eighteen feet. We heard also the Bitter Lakes were only being "filled at the rate of an inch in twenty-four hours," although the part then filling was of very limited area!

At what rate per day will they fill, when the area of the Bitter Lakes is approximating to one hundred and fifty square miles? The question to be answered is—will the supply through such a narrow cut compensate for the enormous evaporation going on?

Will not embankments have to be made through the Bitter Lakes, so as to diminish the consumption by evaporation of the supply through the narrow channel or cut, connecting the Bitter Lakes with the Red Sea? I have already said that the tidal supply from the Red Sea is not to be calculated upon as effective. The tidal range will not reach the Bitter Lakes.

There will be an influx of sand with every tide for a few miles from the new entrance to Port Suez, and nearly all that is brought in will have to be lifted by dredgers, I will give more credit to the reports of the success of the Suez Canal, when I am assured that the level of the water in the Bitter Lakes, has attained the level of the Mediterranean and Red Seas, and then, and not till then I will confess to have drawn erroneous conclusions—and further I will add that it will be a glorious event to have obtained, and to be able to maintain even twenty feet of available depth throughout the Suez Canal and its approaches, in lieu of twenty-six feet as promised by M. de Lesseps.

In the communication from me which appeared in the Civil Engineer and Architects' Journal in June and July, 1861, relative to the projected Suez Canal, I pointedly referred to the new line of fore shore, which would be created by the protrusion into the Mediterranean of the Port Said piers. It is evident that this is now rapidly forming, and on a part of this deposit, brought by the easterly set of the waters of the Nile, and prevailing winds from the north-west, the iron clads *Royal Oak* and *Prince Consort* must have touched. In fact, nature is now forming a new bank, similar to that which separates Lake Menzaleh from the Mediterranean, leaving a long narrow lake of about two miles in breadth between it and the present foreshore. At some future period this may appropriately be called Lake Lesseps.

I am, Sir, your obedient Servant,

4th December, 1869. W. A. BROOKS.

*To the Editor of the Nautical Magazine.*

## "The Merchant Shipping Bill of 1869."

In a previous Number we gave a summary of this most important Bill, which we trust will be consummated as the "Merchant Shipping Act, 1870," in the next Session of Parliament.

We now proceed briefly to remark on the other parts of the Bill.

Part IV. is solely of a commercial character.

Part V. defines the extent to which a shipowner shall be held liable for personal injury or loss of life to any person on board his ship, or for damage or loss to any goods carried on board when such injury, damage, or loss was not occasioned by or with his actual fault or privity, and provides for the empannelling of juries for the trial of such cases, and the summoning of all necessary witnesses.

Clause 393, which defines the extent of the liability of the shipowner for loss of life or personal injury to any one on board his ship, or caused by collision with his ship through her improper steerage is as follows:—

"The owner of any ship, whether British or Foreign, shall not, in cases where any or all of the following events occur without his actual fault or privity, that is to say—

"(1.) Where any loss of life, or personal injury is caused to any person being carried in his ship.

"(2.) Where any loss or damage is caused to any goods, or other things whatever on board his ship.

"(3.) Where any loss of life or personal injury is by reason of the improper navigation of his ship, caused to any person carried in any other ship or boat.

"(4.) Where any loss or damage is, by reason of the improper navigation of his ship, caused to any other ship or boat, or to any goods or other thing whatsoever on board any other ship or boat—

"Be answerable in damages in respect of loss of life or personal injury, either alone or together, with loss or damage to ships, boats, goods, or other things, to an aggregate amount exceeding £15 for each ton of his ship's tonnage; nor in respect to loss or damage to ships, goods, or other things, whether there be in addition loss of life or personal injury or not, to an aggregate amount exceeding £8 for each ton of his ship's tonnage; but shall be answerable as aforesaid, in respect of every distinct occasion on which any such event or events occur, to the same extent as if no such event had occurred on any other occasion."

These requirements are, as regards the loss of life or injury to the person, precisely the same as in the Act of 1862, which Act was an amendment of that of 1854.

The next clause, however, makes Foreign vessels also amenable for loss of life or injury to the person of British subjects.

This part of the proposed Act is one of undoubted importance. The liabilities for loss of life, or injury to the person, are more especially necessary where a system of marine insurance prevails, which in

numberless cases relieves the shipowner of all pecuniary interest in the safety of his vessel.

We could wish that, whilst the upright shipowner should not be harshly dealt with when loss of life occurs, not occasioned by any fault of his, yet that in flagrant cases of sending overladen or unseaworthy ships to sea, such as in the case of the *Utopia*, a heavier punishment than any pecuniary penalty or remuneration to the relatives of those thus deliberately sacrificed, should be exacted.

Part VI., headed "Wrecks,* Casualties, and Salvage," includes all matters connected with the loss or serious damage of vessels by stranding, foundering, or collision with other craft. The first fifteen clauses of this part relate to investigation, and define the duties of the Receivers under the Act, and of those who are authorised, in the absence of the Receiver of the district, to act for him; and give him, as did the former Act, the supreme command of all persons present at the scene of a wreck.

Clause 417 authorises the master of any ship or boat, stranded or in distress, to repel by force any person, not a Receiver or Receiver substitute, who shall attempt to board his vessel without his permission.

Clause 419 requires all persons finding and taking possession of wreck, whether owners of the same or not, to give notice of the fact as soon as possible, to the Receiver, and if an owner, requires him to describe in the notice the marks by which he has distinguished it.

Clause 420 requires the master of any British ship or boat taking possession of any wreck at sea, beyond the limits of the United Kingdom, to deliver the same on his arrival in a British port to the Receiver of the district, or if he shall have previously delivered it to the owner, or have otherwise disposed of it, to render an account of the same to the Receiver, and hand to him the proceeds, if any, that he may have received for it.

Clauses 437 to 439 decree, as did the former Act, that for all services in saving life or property from any British ship or boat a reasonable sum for salvage shall be paid by the owner of the vessel; the salvage for life being payable in priority of all other claims, and that when there shall not be a sufficient amount of property saved to adequately remunerate the salvors of life, the Board of Trade may award, from the Mercantile Marine Fund, such remuneration as they may think fit.

Clause 440 to the end of this Part refers exclusively to salvage of property, jurisdiction, valuation, disputes, apportionment of salvage, enforcement of salvage claims, agreements as to amount, etc.: the appointment of Receivers, their powers, and remuneration, etc. It also, by the 453rd clause, entitles the officers and men in the Coast-guard service to remuneration for services rendered in watching and protecting wrecked property, according to a scale to be determined on by the Board of Trade.

A very important portion of this part of the Bill is that which

* It is said that the wrecks of 1869, amount to above 2710.—ED.

relates to the claims on the owners of wrecked vessels and their cargoes, by those who have contributed to the saving of them, or of the lives of persons on board them.

In either case it will be observed that the same vague expression as to the amount of salvage payment, is used as in the Act of 1854, viz.: "A reasonable sum for salvage." It may be thought by some persons that a clearer definition as to the amount of salvage payments might have been made; such, however, would, we think, be impracticable, as the circumstances under which both lives and property are saved, are so varied in character, that each case must be decided on its own merits.

As regards the saving of life, since the NATIONAL LIFE-BOAT INSTITUTION has undertaken to pay for such services on the coasts of the United Kingdom, we believe that in comparatively few cases has the law been enforced which makes shipowners amenable for saving the lives of their vessel's crews, when property has been salved.

In making those awards, when the services have been performed by the life-boats of the Institution, the boatmen working them receive payment according to a fixed scale except for services of a more than usually dangerous or arduous nature, when they are proportionally increased.

The salvage of property is a work of so much importance and has given rise to so much angry feeling and disputation between shipowners and salvors, and has occasioned so much animadversion on the part of foreigners, that we think it deserving of more than a passing notice.

The jurisdiction in salvage questions is essentially different, as now proposed, from that instituted under the Act of 1854, since justices of the peace are now, in virtue of their offices, to have no jurisdiction. We will quote in full that part of Clause 440 that confers jurisdiction, and which will probably be the law that will in future determine such cases.

"Clause 440. Disputes as to salvage, whether of life or property, shall, in the United Kingdom, be heard and determined as follows, and not otherwise; that is to say—

"1st. If either the amount claimed does not exceed £20, or the value of the property saved does not exceed £50, or if the parties consent in writing, the dispute shall be heard and determined by the Receiver of the district where the services were rendered, or where the property saved is at the time of the making of the claim, and his award shall be final and conclusive against all persons.

"2nd. In other cases, if either the amount claimed does not exceed £300, or the value of the property saved does not exceed £1000, or if the parties consent in writing, the dispute shall be heard and determined by the Local Court of Admiralty having jurisdiction in the place where the services were rendered, or where the property is at the time of the making of the claim.

"3rd. In other cases, the dispute shall be heard and determined by the Superior Court of Admiralty."

Another important distinction between the new and the old Act, if we understand the former rightly, is, that there is no appeal from the decision of the lower authority to a higher one. In the Act of 1854, in cases of dispute, either an owner or salvor could appeal from the Receiver to the Justices of the Peace, from the latter to the High Court of Admiralty, and from that court to the Privy Council; whereas, in the proposed Act of 1870, the decisions of the Receiver, of the Local Court of Admiralty, and of the Superior Court of Admiralty, are each alike—final; the authority before which any dispute shall be brought for adjudication being determined solely by the amount of the claim and the value of the property saved.

We think that this alteration in the law is a beneficial one, as there will not be the same inducement to the professional salvors to litigate, with the hope of obtaining larger salvage payments, in which they are said to have been often hitherto encouraged by attorneys or agents, who, at the principal salvage stations, were regularly employed by them as their legal advisers.

The good working of this system will evidently, however, much depend on the constitution of the Local Admiralty Courts, and on the qualifications of the Receivers. The possession of any property or interest in shipping, or in merchandize carried by sea, should be a disqualification to be a member of an Admiralty Court, or to act as a Receiver or Receiver's agent.

More especially will it be important that the Receivers should be not only interested in shipping, but that they should be men of integrity and judgment, with, if possible, a sufficient knowledge of maritime affairs to be not altogether dependent on the opinions of others as to the character of the services rendered by salvors, in cases where seamanship is required and risk of life incurred. At present, we believe the greater portion of the Receivers are Collectors of Customs, and perhaps, as a collective body, no more impartial or, on the whole, better-qualified men could be found; but a large proportion of them can have no practical knowledge of seamanship; and we think therefore that it would be desirable that to every Local Admiralty Court there should be attached one practical member—a seaman by profession—whose duty it should be to advise the local board and the receiver on all professional questions in cases of dispute, for which, in every case of his being called on, he should receive a fee of fixed amount, independent of the relative value of the property salved or claim for salvage.

As Clause 450 authorises the Board of Trade to appoint, from time to time, any officer of customs or of the coastguard, or, where thought more convenient, any other person to be a Receiver of wreck, it may be presumed that the majority of those officers will continue to be taken from the customs and coastguard services; but at the same time, that they will not invariably be so.

By Clause 452, Receivers are entitled to the payment of all their expenses, and to certain fees, the amount of which is laid down in the 14th schedule of the Bill. All fees received by a Receiver are, how-

ever, to be carried to and form part of the Mercantile Marine Fund; but he will be paid, for his own use, such remuneration as, with the consent of the Treasury, the Board of Trade may from time to time appoint; and he will not be entitled to take any fee for his own use, or to receive any other remuneration whatever. We think the provisions of this clause are very judicious.

The subject of "Salvage of Property" on the sea-coast is a very important one; and we trust that the effect of this Act will be to do justice, as far as possible, to the shipowner, on the one hand, and to the valuable class of men who earn their livelihood by the salvage of wrecked property, on the other.

Part VII. Extending from the 456th to the 517th clause, has solely reference to pilotage.

Part VIII. From clause 518 to clause 560, deals with lighthouses, light-vessels, sea-marks (including buoys), and all connected with the lighting, beaconing, and buoying our coasts, estuaries, and harbours.

Part IX. Conservancy. From Clause 561 to 584, concerns all that is connected with the preservation of our shores and harbours, obstructions to navigation, etc., and confirms the transfer of the jurisdiction over the harbours and shores of the United Kingdom from the Admiralty to the Board of Trade, save and except any harbour, port, bay, estuary, or navigable river, in or adjoining to which there is or shall be any of Her Majesty's dock-yards, victualling-yards, steam-factory-yards, arsenals, or naval stations, which may, on due notice being given by the Admiralty that the interests of H.M. Naval Service require that such places shall be entirely or in part be withdrawn from the operation of this clause, be thereby excepted from the same.

Excepting also, to some extent, the River Mersey, and reserving to the Admiralty to appoint two of the conservators of the river Thames.

Part X. From clause 585 to 625 relates to harbours. Empowers the local harbour authorities, within certain limits, to raise or lower the duties levied by them; gives them authority over harbour-masters and other officers of the port; empowers them to make bye-laws, to purchase land, erect warehouses, etc., and requires them to provide life-boats, tide-guages, and barometers; also provides for the Service of Hull Customs, etc., etc.

The 614th clause decrees that harbour authorities should provide an efficient and well-appointed life-boat when required to do so by the Board of Trade, and such mortar, rockets, and other apparatus for saving lives from shipwreck, as that Board may direct or approve.

Part XI. *Loans to Harbour Authorities.* This part empowers harbour authorities to borrow money for the construction, improvement, maintenance, and lighting of public harbours, from the Public Works Loan Commissioners, on the security of the harbour dues: the amount of such loans in no case to exceed £300,000.

Part XII. Enables the Board of Trade to make provisional orders conferring on persons wishing the same, statutory powers for constructing, selling, purchasing, leasing, maintaining, regulating, etc., a harbour, or for executing, or abandoning, or for extending the time for

executing any work connected with a harbour or with navigation, or for levying or altering dues, or for constituting or altering the constitution of a harbour authority, etc.

Part XIII. Local charges on shipping. Treats of all connected with harbour dues, and defines those which may, and which may not, be levied.

Part XIV. *The Board of Trade.* This part defines the functions of that Board under which our whole Mercantile Marine is placed, and which, even if no other duties devolved on it, might therefore be considered one of the most important public bodies in the kingdom.

A most important clause in this part is the 673rd, which empowers the Board to appoint Inspectors to report to them on the following matters, or any of them.

(1.) On the nature and causes of any accident or damage which any ship has sustained or caused, or is alleged to have sustained or caused.

(2.) Whether this Act, or any regulation made thereunder, has been complied with.

(3.) Whether the hull and machinery of any steam-ship are sufficient and in good condition.

The remainder of the clause is then devoted to defining the powers of the inspectors, and other details.

It will be readily conceived how much of the success of an efficient supervision of our Mercantile Marine must depend on those officers. A board in London cannot be ubiquitous, and if those persons to whom is intrusted the duty of carrying its behests into execution are deficient either in capacity or honesty, all the most wisely-conceived regulations must be utterly useless. Thus a leaky, unseaworthy, ill-found, or overladen ship might be suffered to go to sea through the incapacity of an inefficient Inspector, through the carelessness of a neglectful one, or through the venality of a dishonest one who directly or indirectly might think it to his interest to avoid giving offence to a wealthy and influential shipowner, and lamentable loss of life might thereby ensue, as, it is patent to every one, has times out of number happened through such ships being permitted to leave our ports.

Part XV. *Mercantile Marine Fund.* This part provides for the continuance of the Mercantile Marine Fund, which was originated by the Merchant Shipping Act of 1854.

Clause 674 explains the sources from which this fund is raised—as follows:—

There shall continue to be a common fund, called the Mercantile Marine Fund, an account whereof, called the Mercantile Marine Fund Account, shall be kept with Her Majesty's Paymaster-General.

There shall be carried to this fund—

1. All payments other than fines and forfeitures received by the Board of Trade under Parts II. and III. of this Act.

2. All payments received by any general lighthouse authority under Part VIII. of this Act.

3. All proceeds from the sale of land sold by any general lighthouse authority under Part VIII. of this Act.

4. All payments mentioned in the fourteenth schedule to this Act, which are received by Receivers in pursuance of Part VI. of this Act.

Clause 675 declares the application of this fund, viz., in brief, The payment of all expenses connected with Local Marine Boards, examinations, and shipping offices, with the survey of passenger steam ships, with the inspection of places in ships occupied by seamen or apprentices. All expenses incurred by the general lighthouse authorities on the works and services of lighthouses and sea-marks. The expenses of superannuation, allowances, and compensations, etc., granted by the lighthouse authorities; the expenses attached to Receivers and their duties; also for the establishment and maintenance on the coast of the United Kingdom of life-boats, their crews and equipments; and for remuneration or reward for the preservation of life in cases of shipwreck and distress at sea.

With reference to the general application of that fund, and having in view the sources from which it is obtained, we think that since it is solely paid by the Mercantile Marine, so it should be expended directly or indirectly for its benefit. We believe that a considerable surplus is now, at the end of every year, paid into the Consolidated Fund, and thereby altogether diverted from shipping.

We would suggest a mode in which it might be expended, which, whilst it would directly benefit a valuable part of our maritime population, viz., our fishermen, would indirectly be of service to our merchant shipping, and at the same time be a benefit to the country.

There are all round our coasts many little coves and half-formed natural harbours, where little communities of fishermen nestle together, often pursuing their useful and frequently hazardous calling under great difficulties. Very many of them, by the expenditure of a small sum, varying from £50 to £500, or in some cases perhaps reaching to £1,000, might be converted into comparatively safe and commodious havens for the humble craft, which, although they are not to be compared with the stately vessels that frequent our larger ports, yet daily and hourly discharge their tiny loads of wholesome and nutritious food, which, spreading over the length and breadth of the land, administer to the comforts and luxuries of thousands of homes. Apart, however, from the great benefit which the multiplication of such small ports would be to our fishing population, they would often be literally harbours of refuge to the crews of merchant coasting vessels, who have had to desert their sinking hulls and take to their boats.

The two remaining Parts of the Merchant Shipping Bill, viz., Part XVI.—Provisional Orders; and Part XVII.—Legal Procedure; call for no especial remark.

We therefore conclude this cursory sketch of the Merchant Shipping Bill, by reiterating our impression as to its vast importance, by acknowledging the great labour and ability which have been bestowed on it, and by expressing the hope that, after going through the Parliamentary crucible, it may, with God's blessing, be the means of promoting the welfare of the vast shipping community of this realm, and of indirectly benefitting the whole community of the United Kingdom.

## Royal National Life-boat Institution.

A meeting of this institution was held on Thursday, 2nd December, at its house, John-street, Adelphi; Thomas Baring, Esq., M.P., F.R.S., in the chair. There were also present—Thos. Chapman, Esq., F.R.S., Sir Edward Perrott, Bart., Rear-Admiral Sir W. H. Hall, K.C.B., W. H. Harton, Admiral M. Hardy, Captain De St. Croix, John Griffith, Esq., Eugene F. Noel, Esq., Captain Ward, R.N., and Richard Lewis, Esq.

The minutes of the previous meeting having been read, the silver medal of the institution and a copy of the vote inscribed on vellum were ordered to be presented to Captain James Elyard, of the Second Royal Surrey Militia, in testimony of his gallant services in being one of the first to volunteer to go off in the Broadstairs life-boat, when she recently saved thirteen of the crew of the ship *Frank Shaw*, of North Shields, which was wrecked on the Goodwin Sands during a very heavy northerly gale and in a high sea; the crew of the life-boat had already received for their gallant services on the occasion a reward from the institution which, with local subscriptions had amounted to about £3 10s. each man, or about £50 altogether. The following sums were then granted:—£8 15s. to pay the expenses of the Sister's Memorial life-boat at Llandudno, in going out in a heavy gale from N.N.W., and saving the crew of five men of the Dutch brigantine *Catharina*, which was totally wrecked in Landudno Bay: when the vessel's signal of distress was observed, the life-boat was promptly manned and launched, and was alongside the wreck in half an hour; £14 14s. granted for the service of the Palling life-boat the *Parsee*, in rescuing the crew of six men from the wrecked brig *Watermillock*, of Sunderland, during a N.N.W. gale; £11 15s. to the *Donna Nook* life-boat, North Briton, for bringing ashore the crew of nine men of the barque *Hannah*, of Drobak, Norway, which during a gale had stranded at Gramthorpe Haven; and £22 11s. to defray the expenses of the *Burton-on-Trent* life-boat at Redcar, in saving six out of eight of the crew of the brig *Dawson*, of Newcastle, which went on the Long Skarr Rocks in a high sea. The two other poor fellows had endeavoured to reach the shore in the ship's boat before the arrival of the life-boat, and had lost their lives in the attempt.

Rewards were also made of £6 10s. to the crew of the Barmouth life-boat *Ellen*, for assisting safely ashore the crew of seventeen men of the *Medoc*, of Bordeaux, which struck upon St. Patrick's Causeway, in a strong wind and heavy sea, and was ultimately totally lost; of £10 2s. 6d. to defray the expenses of the life-boat *City of Manchester*, stationed in Carmarthen Bay, for assisting to save the crew of eight men of the brigantine *St. Areta*, Santander, which was wrecked on the Lougharne Sands in very rough weather; of £25 for the service of the Caister large life-boat, the *Birmingham*, on Wednesday, in saving under very perilous circumstances the crew of fourteen men

from a portion of the wreck of the barque *Elsinore*, of Elsinore. The usual reward was also ordered to be given to the crew of the Redcar life-boat, *Burton-on-Trent*, for rescuing, the previous morning, the crew of three men of the wrecked sloop *Frances Mary Phillip*, of Inverkeithing. Sums to the amount of £126 were also granted to the crews of the life-boats at Margate, Southport, Holyhead, Aberlovey, Whitehaven, Theddlethorpe, Newhaven, Southport, Peterhead, Rhyl, Girvan, Lossiemouth, Wexford, and Selsey, for going out on service during the gales of the past month.

Various rewards were also granted to the crews of shore-boats for saving life from wrecks on our coasts. Payments amounting to upwards of £4000 were also ordered to be made on various life-boat establishments, making a total of upwards of £18,447 expended by the institution on its 215 life-boat stations during the eleven months of the present year. It had also during the same period contributed to the rescue of 1033 lives from various wrecks.

Altogether the Life-boat Society had contributed since its establishment to the saving of 18,882 lives from shipwreck. It is hoped that the British public will continue to strengthen the hands of the committee at this stormy period, when its life-boats are engaged day and night in saving life from wrecks. Letters were read from the Marquis of Westminster and the Earl of Derby, expressing their high appreciation of the sympathy of the institution with themselves and their families on the occasion of their late sad and irreparable bereavement.

Peter Reid, Esq., of Threadneedle Street, had munificently presented one thousand guineas to the society to defray the cost of the Ardrossan life-boat establishment. He had on a former occasion given the institution the *Palmerston* life-boat, at Cullercoats. The Earl of Strafford, P.C., had expressed his intention to present to it a third life-boat. Mrs. Boetefeur, of Bayswater, and Mrs. Hounsfield, of Sheffield, had also each decided to defray the expense of a life-boat station. The Independent Order of Odd Fellows, M.U., had sent a contribution of £50 towards the support of their life-boat at Cleethorpes, on the coast of Lincolnshire. An additional £46 had also been received through B. L. Judkins, Esq., towards the support of the Mark-lane life-boat at Great Yarmouth.

The trustees of the late Thomas Boys, Esq., of Brighton, had also sent an additional donation of £200; and the late Robert Fox, Esq., of Falconhurst, had left the institution a legacy of £100; and the late Benjamin Noton, Esq., of Chichester, one of £20; both free of duty.

A new life-boat has been sent by the institution to Wells, Norfolk, the Great Eastern Railway Company kindly giving the boat a free conveyance over their line. A grand demonstration had taken place on the inauguration of the life-boat station on the 12th of November. New life-boat stations were also ordered to be organized at Troon, Ardrossan, and Ballantrae, in Scotland.

# Nautical Notices.

[Communications for the Editor of the *Nautical Magazine* to be addressed to him at 31, Poultry, E.C.]

## Particulars of Lights Recently Established.

(Continued from page 694, vol. xxxviii.)

| Name. | Place. | Position. | F. or R. | Ht. in Ft. | Dist seen Mls | [Remarks, etc. Bearings Magnetic.] |
|---|---|---|---|---|---|---|
| 88. Nice | Lazaret beach | Temporary | ... | ... | ... | Beacon Lights, upper *red* and lower *green*. |
| Bonifacio Str. | Lavezzi R. | Mediterrn. | ... | ... | ... | Beacon stone tower. |
| Cape Ferrajona | Isle Capria, N. Point | ... ... ... | F. | 115 | 12 | |
| 89. Thames R., S. channels of entrance | Buoys newly | arranged | ... | ... | ... | |
| 90. Port Said and Nile mouths | Egypt coast | See Notice 90. | Fl. | ... | 20 | Estab. 17th November to replace former. |
| Patras Mole | Light re-est. | ... ... ... | ... | ... | ... | See Notice No. 90. |
| 91. N. Brother I. | New York, E. Point | South end of Is. | F. | 50 | ... | Established 10th November, 1869. |
| Oswego Harb. | L. Ontario | Canada W. | R. | ... | ... | Est. 5th Nov. Interval 90 seconds. |
| Chicago Harb. | L. Michigan | N. Pier | F. | ... | ... | |
| 92. Thames, N. channels of entrance | Buoys newly | arranged | ... | ... | ... | See Notice |
| 93. England E.C. | Buoys newly | arranged | ... | ... | ... | Berwick to Orfordness |
| 94. Goodwin S. | S. G. buoy | ... ... ... | ... | ... | ... | Moved to 5 cables S.W. by S. |
| Isle of Man, Douglas Bay | Prom. Pier | Harbour Lt. | F. | 20 | ... | Established December 30th. Light *blue*. |
| 95. Hilo Harb. | Owhyhee I. Sandwh.I. | Pankaa Pt. | F. | 50 | 10 | Est. ? |
| Honolulu Har. | Ditto | West, reef at entr. | F. | ... | ... | Est. ? See Notice 35. |
| Kawaihea | Ditto | ... ... ... | F. | 50 | 10 | Est. |
| 96. Oran Port | Algeria | See Notice 96 | ... | ... | ... | Destruction of Port |
| 97. Spithead | England | East chan. F. way | ... | ... | ... | Temporary light. |
| 98. Hormiga Gr. | Mediterrn. | Spain coast | ... | ... | ... | Light discontinued for repair. |
| Marseilles Hr. | Mediterrn. | France | F. | 39 | 7 | Est. Dec., 1869. *Red*. See Notice. |
| Palermo, Mole Head | Ditto | Italy | F. | 38 | 2 | Floating light discontinued. |
| Missolonghi | Ditto | Greece | ... | ... | ... | Discontinued for repair. |
| 99. Moose a Bec Reach | U. States | Maine | ... | ... | ... | Beacons placed. See Notice 99. |
| Lucretia Point | W. Indies | Cuba, see No. 5. | ... | ... | ... | Light re-established. See p. 108, vol. xxxviii. |
| 100. Philippine I. | Rock | ... ... ... | ... | ... | ... | See No. 100. |
| Yedo Bay | Plymouth R. | Japan | ... | ... | ... | Beacon established on them. |
| 101. Elbe outer Light | North Sea | ... ... ... | R. | ... | ... | Instead of the Fixed Light. |
| Jutland | Fanco Is. | Beacons | ... | ... | ... | Navigation of Graa Deep. |
| 102. Carnarvon Bay | N. Wales | ... ... ... | R. | 38 | 10 | Est. Dec., 1869. See Notice 102. |
| 103. Yokohama anchorage | Yeddo Bay | Japan | ... | ... | ... | Beacon Buoy. See Notice 103. |
| Simonoseki Strait | Buoys in | Ditto | ... | ... | ... | Est. See Notice No. 103. |

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

No. 95.—LIGHT IN HONOLULU HARBOUR.—The light is elevated 26ft. above the sea; visible from between the bearings east round by north to N.W. by W., and in clear weather should be seen at a distance of 9 miles. The illuminating apparatus is dioptric or by lenses, of the fourth order. From the lighthouse the Spar or Fairway buoy bears S. by W. 6¼ cables, Diamond point S.E. by E., Barbers point W. ¼ S., and the eastern corner of the Custom House N. by E. ½ E.: near to this corner of the Custom House, from a tower, a *green* light is exhibited, elevated 28ft. above the sea, and in clear weather should be seen from a distance of 5 miles.

*Directions.*—To enter the harbour by night, bring the two lights in a line, and keep them so until within a cable of the lighthouse on the reef, then steer to the eastward, to avoid the end of the spit on which the lighthouse is built, towards the east end of the new wharf, and when half way between the light on the reef and the new wharf steer N.W. to the anchorage inside.

FIXED LIGHT AT KAWAIHAE.—Also, that a *fixed white* light is exhibited as a guide to the anchorage of Kawaihae, Owhyhee, elevated about 50ft. above the sea, and in clear weather should be seen from a distance of 10 miles. From the N.E. corner of the reef the light bears N.E. by N. ½ N.; with the light bearing E.N.E. there is good anchorage about a quarter of a mile from the shore.

[*All bearings are Magnetic. Variations* 9¼° *Easterly in* 1869.]

No. 96.—ORAN.—Information has been received that the breakwater works forming the Port of Oran on the coast of Algeria have been entirely destroyed by a storm, and that the port at present affords no shelter to shipping. The scattered fragments of the breakwater are also now a source of danger in the anchorage. Mariners are cautioned accordingly.

No. 99.—BEACONS ON THE EAST END OF MOOSE A BEC REACH.—The United States Government has given Notice that the following beacons have been erected at the east entrance of Moose a Bec Reach, Maine:

*Gilchrists Rock:*—An iron shaft 35ft. high with a circular cage on the top.

*Moose Rock:*—An iron Tripod 30ft. high with a rectangular cage on the top 6ft. high by 4ft. broad.

*Snow's Rock:*—A modern shaft 25ft. high with a cask on top.

No. 100.—ROCK IN CHANNEL BETWEEN PANAY AND NEGROS, PHILIPPINE ISLANDS.—The rock, now named *Turia rock*, is about 30 yards in extent, with one fathom water over it at low water, and 8 fathoms around it. The following bearings were taken from a position, 70 yards to the north of the rock, in 4¼ fathoms:—South-east point of Anauayan island N.E. ¼ E., south point of Ilacaon island E. ⅛ S., north point of Calabazos island N.W. by W. ⅞ W., Visita Manapla S. by E. Position of the rock, lat. 11° 2′ 15″ N., long. 123° 4′ 57″ East from Greenwich.

No. 102.—LIGHT-VESSEL BETWEEN BARDSEY ISLAND AND SOUTH STACK.—The light is a *revolving* light with *white and red flashes* at intervals of *twenty seconds* in the order of *two white* and *one red*, elevated 38ft. above the sea, and in clear weather should be seen from a distance of 10 miles. The light-vessel has the words *Carnarvon Bay* painted on her sides, and is moored in 30 fathoms at low water springs, with the

following marks and bearings:—The easternmost house on the back land at Rhoscolyn in line with Rhoscolyn beacon N.E. ⅝ E., South Stack lighthouse N.N.E. ¾ E. 13 miles; Red light on Llandwyn island E. by S. 12½ miles; Bardsey island lighthouse S.S.W. ½ W. 20½ miles. A small ball over a large one at the masthead distinguishes this vessel in the daytime from the light-vessels on the Irish coast and in Cardigan bay.

[*All Bearings are Magnetic. Variation* 23° *Westerly in* 1869.]

No. 103. — Buoy Southward of Yokohama Anchorage. — The Japanese Government has given Notice, that an iron buoy with a cage has been moored in 4 fathoms on the northern extreme of the shallow water to the southward of Yokohama anchorage, with the following bearings:—Mandarin Bluff S. by E. ¼ E., Mouth of the canal S.W. by S. ½ S., Centre of the English Hotaba W. by S.

Simonoseki Strait.—Buoys in the Channel.—To facilitate the navigation of the Middle channel, two iron buoys with cages have been placed at the east end of Simonoseki strait.

1. A buoy with *black and white* rings in 9 fathoms on the Kanabuse or Fisherman's rocks; from it Mozi hill bears S.W., Isaki point E.S.E., Kusi-saki N.E. by N.
2. A *red* buoy in 3 fathoms on the Middle ground; from it Kusi-saki bears N.N.W. ½ W., Isaki point S.E. by S. ¼ S., and Kanabuse buoy W. by S.

*Note.*—The deepest water through the channel will be found one and a half cables southward of the buoys.

[*All Bearings are Magnetic. Variation* 2¾° *Westerly in* 1869.]

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## Suez Canal,* *with Directions for its Pilotage.*

The following information has been received from Commander G. S. Nares, of H.M. Surveying Vessel *Newport*, which vessel passed through at the opening, November, 1869:—

*Approaching Port Said.*—The coast in the neighbourhood of Port Said is unusually low, being out of sight at three miles distance. The lighthouse, town, and shipping are then the only objects seen from the offing.

At present there are two tall obelisks, one on each side of the canal entrance, but as they are merely built of boarding they can only be temporary.

At six miles to the west the coast is marked by Gemileti tower—a low, square building standing by itself on a low sandy coast; but to the eastward of the Port there is nothing to mark the low shore.

*Current.*—The current off the coast is very uncertain. It generally runs with the wind, from half to one and a half knots an hour. The general set is to the eastward. Owing to the current and low shore, more than usual caution is necessary in approaching the harbour.

*Port Said Harbour.*—The harbour is formed by two concrete breakwaters extending from the sandy shore. Inside the piers the harbour is

* We understand that a plan of the Canal is preparing for publication by the Admiralty.

at present constantly silting up, in consequence of the current, heavily laden with sand, running through numerous openings in the piers, and depositing the sand in the quieter water inside.

A good straight channel of twenty-six feet of water has been dredged, leading into the inner basins, about one hundred yards inside, and parallel to the west pier. It is marked by black buoys on the east side, and red ones on the west side; and it may be presumed that the authorities will be careful to keep it clear.

The basins inside the harbour have a depth of twenty-six feet water; they are sufficiently large for the trade which may be expected. If not, there is ample space for enlarging them.

*Lights.*—On the outer end of each breakwater there is a low light—*red* on the west pier, and *green* on the east one. The Port Said lighthouse is a tall white stone tower, one hundred and eighty feet high standing close to the inshore end of the west breakwater. It shows a flashing white lime light, visible eighteen miles.

*Pilot Signal.*—The pilot boats carry a blue peter flag.

*Outer Anchorage.*—The best anchorage (in six fathoms) is with the low red light on with the high lighthouse; or the west pier head a little open of the lighthouse on either side.

The bottom is mud and very good holding ground. A bank with twelve feet water has been formed to the eastward of the harbour. The east pierhead light (green) on with the high lighthouse leads over the west edge of the bank; therefore, these marks must be kept well open.

In approaching, allowance must be made for a bank which is forming outside the west pier end. In November, 1869, there was six fathoms at half a mile from the pier end, with the anchorage marks in one.

*Entrance to Canal.*—The entrance to the Canal is conveniently situated at the inner end of the basins.

*Port Said to Kantara* 24⅛ *miles.*—The usual depth of water is from twenty-six to twenty-nine feet; immediately south of the Campement de Cap is a short bank of twenty-four feet; and one mile north of Kantara, opposite the forty-third kilometre* mark (twenty-six miles), is a bank of twenty-three feet.

The whole of this distance, 24⅛ miles, with the exception of one-sixth mile at the Campement, which is higher, the Canal runs through a wet flat sandy plain—scarcely higher than the level of the water on the east side, and a little below it on the west side, which, with a "high Nile," is completely overflowed, and the sand rendered firm by the deposit of mud from the river. In this part of the Canal there is no sand-drift, and it may be considered as completed.

The debris thrown up on the banks is firm, black, sandy mud, protecting the Canal from the water in Lake Menzaleh, without any opening in the whole distance.

*Kantara to the north end of Lake Ballah* 2½ *miles.*—The Canal passes through sand-hills from twenty to thirty feet high, and has a depth of from twenty-six to twenty-eight feet. This part of the Canal is completed, but it is subject to a severe sand-drift in high winds.

*Lake Ballah, seven miles.*—The Canal here passes through a lagoon, with a depth varying from nineteen to twenty-four feet, but the dredges are still at work.

There is constant trouble in this part of the Canal in consequence of the banks on each side, which are composed of fine sand debris, not being

* The kilometre (French) is equal to 0·621 of a statute mile or 3279 feet.

firm enough to resist the constant ebb and flow of the water between the Lake and the Canal; which carrying large quantities of sand with it, is constantly altering the depth of water.

*Lake Ballah to Lake Timsah, eight miles.*—In this cutting the sand-hills are about forty feet high. The depth in the Canal varies from twenty-two to twenty-four feet; but there is work still going on in the shallow parts.

All this part is subject to heavy sand-drift.

For about four miles in the neighbourhood of El Guisr the Canal is cut through a strata of soft lime or sandstone. The sharp turns between El Guisr and Lake Timsah are probably owing to the engineers having followed the softest part of the rock. Ships can pass round the curves without trouble.

*Ismailia, Lake Timsah.*—The central station in the Canal is well situated for a stopping place. There is at present only twenty-two feet in the middle of the Lake, but the dredges will soon give deeper water.

*Through Lake Timsah to Toussoum.*—The depth varies from twenty-two to twenty-seven feet, except one bank of twenty feet in the Lagoon.

The debris banks here, of pure sand, like those in Lake Ballah, are not adhesive enough to form a barrier between the Canal and the Lagoons, to keep the silt from running into the channel, but the Canal is sufficiently wide to allow dredges to work *without stopping the traffic.*

*Toussoum to north entrance of Bitter Lakes.*—In this cutting the Canal is carried through a strata of sandstone with depths from twenty-two to twenty-four feet, except in one place one mile south of Sérapéum; where for about thirty yards there is a narrow ridge with only eighteen feet water over hard rock. A strong party of men are at work, and the obstruction will soon be reduced. At the south end of the cutting the deep channel is narrow and incomplete.

This cutting is subject to a very heavy sand-drift.

From the debris on the bank it would appear that the narrow ridge of stone running across the Canal had only lately been discovered.

*The North Bitter Lake to the South Lighthouse, 9½ miles.*—The margin of the deep water in the Lake, one mile and a half from the entrance, is marked on the east side by a red iron pillar lighthouse forty feet high, showing a fixed white light visible ten or twelve miles.

The excavated channel leading into the deep water has a depth of from twenty-four to twenty-nine feet. It is conspicuously marked on each side by iron beacons fifteen feet high, with a black ball three feet in diameter on the top.

As we passed, each beacon was lighted, but whether the lamps are to remain could not be ascertained.

The margin of the deep water at the south end of the Lake is conspicuously marked on the east side by a lighthouse similar to the north one, and by a buoy on the west side.

A straight run may be made between the lighthouses (a distance of eight miles) with not less than twenty-two feet depth of water; twenty-six feet may be obtained by passing nearer to the west shore of the Lake.

*From South Lighthouse to the south end of Bitter Lakes, 10¼ miles.*—The water in this part of the Lake being shallower, a cutting has been made giving from twenty-six to twenty-seven feet depth. The channel is well marked by numerous iron beacons on each side (from four to six to a mile) similar to those at the north end of the Lake.

*Bitter Lakes to Suez Lagoon.*—This part is quite complete with hard banks, and depths of water from twenty-six to thirty feet at low water. It is subject to sand-drifts.

At Chalouf the cutting is carried through sandstone; the debris is hard and lumpy.

South of latitude 30° 6′ N., the Canal passes through sand-hills, it increases in width, and the debris on the bank is more than usually large.

At Madama the banks are of firm marl or soft clay.

*Suez Lagoon to two red lights at entrance.*—This part of the Canal is incomplete; the debris banks are sand. The soundings were irregular, the depth varying from twenty-one to twenty-six feet at low water.

A large number of men are still at work here.

At the entrance a good stone wall is built on the west bank, but it requires to be raised and extended. Another is much wanted on the east side, where the curve already shows the usual signs of scouring out on the outer and depositing on the inner side.

*From the red lights to the Gulf of Suez, 1¾ miles.*—The south end of the Canal may be said to extend 1¾ miles beyond the two red lights, passing the Suez creek and the new Dock and Harbour works, into the Gulf of Suez with not less than twenty-seven feet at low water.

With a flood tide a great quantity of silt pours into the Canal from the sand bank on the east side of the entrance, but doubtless means will be taken to prevent it.

A breakwater has already been carried across the sea face of the bank.

The mouth of the canal is marked by a *red* light on the west side at the extreme end of the new harbour works, and by a *green* light on the opposite side on the nearest end of the breakwater. Both lights are at present only hoisted on temporary poles. Outside these marks the channel is further shewn by a line of buoys, white on the east side and red on the west side.

*Suez Dock.*—The dry dock is four hundred and thirty feet long, eighty-three broad, and can dock a ship drawing twenty-three feet when the channel outside is completed.

*Current in the Canal at north end.*—The current depends on any variation in the height of the water in the Mediterranean. The banks shew that the Canal here is subject to a rise and fall of one foot, the current and height lessening as the distance from the entrance increases.

There is no tide or current in Lake Timsah or the Upper Bitter Lake.

*Tide at Suez end of Canal.*—The tidal influence extends from Suez to four miles north of the southern end of the Bitter Lakes.

The stream commences to flow from two to three hours after low water at Suez.

A spring tide rises six feet at Suez, two feet at Madama, one and a half at Chalouf, and half a foot at the south entrance of the Bitter Lakes.

At Kabiet there is no rise and fall. The immense reservoir of water in the Bitter Lakes with an ebb tide, and in the Gulf of Suez with the flood, will prevent the tide ever having a greater range.

With a strong southerly wind in the Gulf of Suez the water rises to from eight to nine feet at the head of the gulf, and may affect the water in the Canal to some small extent.

From two to three hours before high water at Suez the flood with a spring tide was running one and a half knots at Chalouf, increasing to two or two and a half knots at Madama, with the water very much discoloured.

By starting from Suez an hour before low water a vessel will arrive in the Bitter Lake before the flood tide overtakes her, and having nearly slack water all the way.

*Ships passing each other.*—Every five or six miles a short widening in

the Canal (a gare) gives room for a vessel to haul in and allow another to pass her with ease. Vessels can pass each other at any part by using warps, but they cannot do so without stopping, except at great risk of running on shore and delaying the whole traffic of the Canal.

*Time taken to pass through the Canal.*—A single ship could pass through in from fourteen to sixteen hours; and two small ships, entering one at each end, could pass each other without slackening speed.

But it is impossible to carry a train of large ships through in one day.

Lake Timsah and the town of Ismailia are conveniently situated and sufficiently large for a stopping place; and doubtless arrangements will be made for ships to start from each end on one day, for all to meet and anchor for the night at Lake Timsah, and to start for their respective ends the following morning. This, allowing eight hours for passing through each end of the Canal, and twelve hours for remaining at Ismailia, will give twenty-eight hours for the transit.

With a full moon a handy ship, by entering the Canal in the evening and arriving at Ismailia in the morning early enough to join the train of vessels, might perform the voyage in from sixteen to twenty hours.

With a train of only two or three ships, and no delay at nights, the transit would occupy about eighteen hours.

*Damage to the Canal by the wash of steamers.*—There is no doubt that every vessel will cause more or less damage to the banks on passing, but screw ships only going five or six knots will hurt the Canal very slightly, except in the lagoons, where the banks are formed of very fine sand.

The *Pera*, a large paddle-wheel steamer, on passing with great speed (eight knots), and displacing the water in the whole breadth of the Canal, did considerable damage, the wave she made swamping several boats. Large vessels should be made to reduce speed more than small ones.

*Damage to ships touching the ground.*—Should a vessel touch the ground in any part of the Canal, except in the tidal part at the Suez end, she will sustain no damage, merely being thrown out of her turn in the line. A good coating of sand has formed at the bottom of the Canal in the sandstone cuttings.

In the tidal part near Suez, if a vessel is passing through with a following tide and the bow touches either bank, there will be great danger of her swinging across the Canal, with a two knot current running against her broadside.

With a wind blowing across the Canal, vessels touching the lee side will be blown at once against the bank, but without any damage.

*Pilots and navigation.*—The present pilots will rapidly gain experience; with trained leadsmen and a lead going on each side of the ship there is no difficulty whatever in navigating the Canal and keeping in mid-channel. Should a bank form, it will be at once detected, and ample means are ready for reducing it.

The precautions necessary are similar to those in any river, with the advantage of there being fewer and better curves, and nearly a straight course throughout.

*Sand-drifts.*—Thirty-five miles of the Canal is subject to the sand drifting. One squall was experienced (force six) when the drift was as thick as an ordinary fog, and most distressing to the eyes; so much so, that had the ship been in a curve at the time, there would have been great difficulty in keeping her in the proper channel.

Fresh water pipes run along the west bank of the Canal for the greater part of its length, and doubtless, as soon as the water is no longer required for the engines, it will be used to irrigate the banks and endeavour to stop this nuisance.

*Present state of Canal.*—In the total eighty-six and a half miles, sixty-five may be considered as quite completed. Throughout the remaining twenty-one and a half miles there is either dredging or embanking work still going on. For five miles in the worst parts of Lake Ballah and the Lagoons south of Lake Timsah, constant dredging will be required, until means are found to keep the banks solid enough to prevent the waters communicating.

In the Sérapéum cutting there is a rocky ridge of a few yards with only eighteen feet water upon it, which will soon be removed. Except for about ten miles there is twenty-four feet of water throughout the canal. Vessels drawing seventeen feet can pass through with ease. When the barrier at Sérapéum is removed the canal will be open to ships drawing twenty feet.

The largest ship that passed through the canal at the opening was the *Peluse*, Egyptian yacht, drawing sixteen feet, about two hundred and fifty feet long. Several ships grounded on the passage, but all got off again with a little delay. The grounding was caused more by the desire of the forty or fifty ships to get quickly through, than through any fault in the Canal.

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## Review of some Nautical Topics of the Day.

That all-engrossing subject the completion of the Suez Canal has taken its place high in the list of public events, and it is yet likely to command its due share of public attention as we shall hereafter see. We are far from ascribing its real execution to any one else but its real author Mr. Lesseps. But there is a hero of antiquity, who would dispute even with him the palm of originality were he living, in the person of the celebrated Baron Munchausen, who oddly enough speaks thus of it in the history of his travels.—

"Seized with a fury of canal cutting, I took it in my head to form an immediate communication between the Mediterranean and the Red Sea, and therefore set out for St. Petersburgh.

"I now proceeded to the Isthmus of Suez, at the head of a million Russian pioneers, and there united my forces with a million of Turks, armed with shovels and pickaxes. They did not come to cut each other's throats, but for their mutual interest, to facilitate commerce and civilisation, and pour all the wealth of India by a new channel into Europe. 'My brave fellows,' said I, 'consider the immense labour of the Chinese to build their celebrated wall; think of what superior benefit to mankind is our present undertaking; persevere, and fortune will second your endeavours. Remember it is Munchausen who leads you on, and be convinced of success.'

"Having made a track with my chariot from sea to sea, I ordered my Turks and Russians to begin, and in a few hours we had the pleasure of seeing a fleet of British East Indiamen in full sail through the canal. The officers of this fleet were very polite, and paid me every applause and congratulation my exploits could merit," etc.

The British "East Indiamen" are gone by with the Baron, and

substituting for them the *Eagle* steamer and all the magnificent train of shipping, bearing empresses, emperors and princes, and what might have appeared a touch of the wonderful in the days of yore, is now what our cousins would call a great fact. We did not desire however to enter on romance, and for thus far alluding to it we must really blame the canal, although we can well excuse M. de Lesseps, whose wonderfully incessant and imperturbable perseverance has obtained him the reward he has earned so well. But his work is not yet done. He has now only to keep it open, and he will have doubly immortalised his name. Yet we have heard reports that it is about to be closed for an interval, to enable the dredgers to clear away fallen sand, and as to Port Said itself, we have recorded the Admiralty directions for ships, and may it not be left in the sand banks which is to enclose Lake Lesseps. But assuredly there are evils looming in the future, that will require the application of all the resolution and skill of M. de Lesseps, to avert those evils that will perpetually be threatening its destruction.

Another canal not very far from it, that is proposed to be cut through the Corinth Isthmus, bids fair to be more fortunate, having no slipping sands to choke it, nor the levels of two different seas to trouble it, but the tolerable equable level of the Mediterranean alone.

It is said that "a Bill relative to cutting through the Isthmus of Corinth is about shortly to be discussed in the Hellenic Parliament. That narrow neck of land which gave its name to the famous ancient city that separates the Gulfs of Lepanto and Athens, and unites the Morea to Continental Greece. This natural obstacle to navigation between the Adriatic and the Archipelago compels all vessels from the coasts of France, Italy, or Austria to double Cape Matapan, in order to reach the ports of the Levant. The execution of this work, by joining the two seas, would open a new highway to navigation, and vessels from Marseilles, Genoa, Naples, and Messina, by passing direct through the canal of Corinth would save fourteen hours, and a voyage often dangerous, while those from Brindisi, Ancona, and Trieste, would economise twenty-four hours. On each side of the isthmus there exist, if not ports, at least deep bays in which vessels of large tonnage daily find a safe anchorage."

Such a distance saved in these days is of importance, although not to be compared with that round the Cape, and on such account its success is to be desired.

Looking about us in that classic midland sea, we cast a pitying look on the late Port of Oran. Here is the account of the manner in which it was disposed of.

"In a terribly severe storm on the 30th and 31st October, a strong northerly wind and heavy sea set in, but no serious damage was done to the harbour of Oran until the 1st of November, when the wind increased in violence, and the sea swept over the breakwater into the inner basin, and scattered the concrete blocks composing the jetty

until not one was left standing on another. The port no longer affords any shelter for shipping, and the remains of the breakwater constitute a source of actual danger."

Those northerly winds have lately produced mischief among ourselves, by raising the tides of the Thames to a level far higher than usual; reminding us that Tide-end House, at Teddington, the late residence of Benjamin Higgs, the defaulting cashier to the Great Central Gas Company, which has been purchased by Sir Clifford Constable for £6,500, as the legitimate extent to which the tide turns in the Thames, may not always prove to be its turning point, since the barrier of London Bridge has long ago been removed.

So after all that has been said about a *Channel Bridge* and a *Channel Bridge Company* it amounts to nothing. Yes, that new periodical called "*Nature*,"* in a few cool words has fairly annihilated it. And who can doubt the propriety of such a decision against a fabric that was to rest on piers, one mile and a half apart! of which there were to be ten, and some standing in thirty fathoms (one hundred and eighty feet) water, the summits of which piers were to be about three hundred or four hundred feet above the surface of the channel. These are the few words in which "*Nature*" pooh poohs the whole concern, and we commend our new journal for the plain truth they contain. Thus we read of this bubble scheme:—

"The whole proposition is the offspring of a highly imaginative mind. Of all the schemes or suggestions to cross the channel by rail, this is the most incoherent! *There is nothing in it*—not one point of merit. It is not bold, because it lacks the spirit of boldness, viz., *sense*. Not a trace of an engineer's mind is to be found in it. Our asylums produce innumerable schemes of this kind, but they are not permitted to disturb the public mind. It is a relief to have done with it. We are glad to say there are several projects which do not lack either sense or ability on the part of the originators. Some of them *appear* practicable, and one or two promising of success, and these will form the subject of our next communication."

The advocates of the Bridge scheme we shall hear little more of, and we shall wait for those which "Nature" seems to think "promising of success." By the way we heard of a determination to construct a becoming harbour on the French coast, somewhere near Cape Grisnez, and we apprehend that after all, better than any bridge or tunnel would be a company of large powerful steamers with harbours on both shores capable of affording them complete shelter and safety on each shore, which harbours would be far more certain of construction than either bridge or tunnel, and they might be so strong as to be able to take care of themselves.

"At Table Bay some most extensive works are approaching completion. They consist of an inner basin or dock, 1,025 feet long by

* A new weekly periodical of considerable promise, in point of good sense and science.

480 feet wide, about ten acres in area, and having a depth of water at the north end of twenty-four feet, and twenty feet at the south. The inner entrance is 100 feet in width, and the outer entrance 200 feet. The outer basin has a depth of twenty feet for large ships, and ten feet for small vessels, and is 800 feet by 400 feet, covering six acres. There are two jetties or piers to protect the entrance to the basins; the south jetty is 240 feet in length and twenty feet in breadth, but the other may be called a breakwater, for it is carried out to 1,860 feet from high water mark, and on the sea head there is a lighthouse. It is intended to make this breakwater 1,000 feet longer, but at present it shelters the outer entrance. A patent slip is in operation, capable of taking up ships of 2,000 tons; and a dry dock of 375 feet by sixty-five feet, with a depth on sill of eighteen feet, is projected.

"When the entrance to the basin has been deepened to its full extent, the largest of vessels may enter with safety. Bonded and other warehouses have been erected, besides a smithy and engine factory fitted with powerful machinery for repairing, coal sheds, and every needful appliance. When all the works are completed in accordance with the plans of the engineers, they will be a great convenience to shipowners and also to shippers of goods.

On the subject of the illumination of beacons and buoys, to which we have alluded recently, we understand that the method adopted by Admiral Sheringham, referred to in our November number, for illuminating buoys, is different to that employed by Mr. Thomas Stevenson. The Admiral's plan is to illuminate by gas, and to ignite by heat produced by electricity, while that of Mr. Stevenson is to illuminate by electricity. In the experiments made at Granton, the light was that of the induction spark produced by a Hinsen battery, and since then the spark from Mr. Wilde's electro-magnetic apparatus has been used. The only beacons in this country which derive their lights from the shore, and which are accessible in stormy weather, are those of Stornoway lighted in 1852, and one erected some years ago in the Clyde. That at Stornoway is what Mr. Stevenson has termed an apparent light, and is the first of its kind. A strong beam of light is thrown from the shore upon optical apparatus placed on the top of a beacon placed on the Arnish Reef, so as to produce the effect of a lighted lamp. More recently a light on the same principle was erected at Odessa in the Black Sea, the apparatus for which was constructed by Messrs. Chance of Birmingham. The light on the Clyde is from gas supplied from the shore, and is never extinguished, but is turned down during the day.

It is said that in reference to the steam traffic likely to be carried on by the Americans with Japan from San Francisco in the future prospects of trade which the great railway will occasion, the United States Senate have voted the sum of 50,000 dollars towards the construction of a harbour and coaling station for the Pacific fleet at Midway Islands. The P. M. S. S. Co.'s steamers will call at these islands to

coal when they commence their bi-monthly trips. These islands lie midway between San Francisco and Yokohama, and were alluded to by us in our Volume for 1868, under the name of Brooks' Islands, in latitude about 28° N. and 177° W.

In our last number is an account of the loss of the ship *Royal Standard* on her way from England to Australia, and we find in that valuable weekly paper the *Maritime Register* of Sir John Mitchell, the following statement of the judgment pronounced by the Court of Inquiry respecting her wreck, that was held at Rio Janeiro. We give it as it stands recorded.

"The loss of the ship *Royal Standard*. A Court of Inquiry was held at Rio Janeiro on the 23rd of October respecting the wreck of the *Royal Standard* (iron), 2,082 tons, from London for Melbourne, which took place on a sandbank, eastward of Cape St. Thome, on the Coast of Brazil.

"The Judgment was as follows:—The Court having fully weighed and considered all the evidence offered to them, and that could be obtained, relative to the circumstances attending the loss of the late ship *Royal Standard*, are of opinion,

"That the primary cause of the loss of her masts was on account of the bowsprit parting.

"That the cause of the bowsprit giving way was undoubtedly from there being a serious defect on the underneath part of it, probably caused by an old spring.

"That the ship was pressed by sail, and labouring against a head sea, but not to such an extent as to cause a sound bowsprit to carry away.

"They are further of opinion that the defect in the bowsprit was unknown to any one on board the ship, as it could not have been detected unless the bowsprit had been removed.

"The Court also consider that after this accident all possible exertions were used to get the ship under command again, and on her course for Rio de Janeiro under jury masts. It having been proved to the Court that the ship was stranded on a shoal off Cape St. Thome on the morning of October 10th, 1869, and that subsequently eight lives were lost, the Court are of opinion that the loss of the ship is to be attributed,

1st. "To the fact that the Master appears to have placed implicit confidence in his chronometer *after the masts had fallen almost immediately over it.*

2nd. "That the position of the ship was not verified by trying for soundings on the Victoria Bank, over which the ship should have passed according to the reckoning.

3rd. "That soundings were not tried for up to the time the ship struck, although they could have been obtained for eighty miles before she grounded, and the position of the ship immediately ascertained, soundings being the only means by which the position of the ship could be verified.

"The Court are therefore of opinion that Mr. Hugh Clark, Master of the late ship *Royal Standard*, was to blame for the loss of the said ship in each of the above-mentioned particulars, as well as for not having a responsible officer in charge of the deck during the morning watch that the ship struck. The Court are further of opinion that blame is attributable to Robert M'Clement, Boatswain of the said ship, who was in charge of the deck during the morning watch that the ship struck, as the Court cannot believe that a ship could have approached so close to the land without it being seen had a proper look-out been kept.

"The Court having very carefully and deliberately weighed and considered the further evidence produced in behalf of the Master and Boatswain, see no cause for altering their before-mentioned opinion, with the exception that it now appears the officer in charge of the deck when the ship struck (the Boatswain) was holding a certificate qualifying him as Second Mate in the Merchant Service from the Board of Trade, and that the look-out man was also seriously to blame.

"The Court doth, therefore, by virtue of the power and authority vested in it, adjudge him, the before-mentioned Mr. Hugh Clarke, Master of the late ship *Royal Standard*, to be deprived of his certificate as a Master in the Merchant Service for a period of six calendar months, and he is hereby deprived of his certificate for that period accordingly. They further adjudge Mr. Robert M'Clement, Boatswain of the late ship *Royal Standard*, to forfeit all and any arrears of pay that may be due to him; and William Westaadt, Able Seaman of the late ship *Royal Standard*, the look-out man on the occasion of the ship striking, to be imprisoned in the common gaol at Rio de Janeiro for a period of twenty-eight days, and to be kept to hard labour for the whole period, and he is hereby so sentenced accordingly."

It is evident that the bowsprit was to blame here, being the primary cause of the loss of the masts. How like the old story ("for want of a nail the shoe was lost, for the want of the shoe the horse was lost, etc."), and hence all the evils which followed. But it does not follow that because the bowsprit *could* not do its duty (by reason of being disabled by an underneath defect known to no one on board, but possibly very well known somewhere else), the Court seems to have considered that other matters should not have been neglected, although "implicit confidence" in the virtue of the chronometer, even after the shake it might have had by the masts which had fallen almost immediately over it! shows the *highest estimation* in which it was held. It was unfortunate that such confidence would not save the eight lady passengers that were unhappily lost, and how can the suspension of the Master's certificate, or the Boatswain losing his arrears of pay, or even the look-out man being imprisoned in gaol for twenty-eight days;—how, we say, can all these put together compensate the relatives of those unfortunate eight lady passengers who were drowned in consequence, for the losses their relatives have sustained. Still they are particulars that should be known, and the British Public are thus enabled to judge for themselves what the

"perils of the sea" really are, when they are to be encountered in that mysterious craft a *British Merchant Ship!* which it is here proved (if proof were really wanted) may go to sea with such a radical defect as to be the incipient cause of her loss.

Such losses as these go very far to do away with all confidence in British Mercantile Shipping. It is but the other day that the charge of scuttling the *Old England* failed to be brought home, from some technicality in a court of law. But here is another which only happened this month. We read in the papers of the 11th December, the following brief paragraph:—

"Yesterday a telegraph despatch was received in Liverpool to the effect that the *Blanche*, bound from Swansea to Southampton, had foundered on Thursday, about eighteen miles off the Old Head of Kinsale. The telegram is dated from Queenstown yesterday, and merely stated that the vessel sprung a leak; that a portion of the crew took to the boats, and the remainder to a raft. That portion of the crew in the boats were rescued by a fishing smack, and landed at Queenstown on Thursday night; whilst the raft was fallen in with by a pilot boat, the crew taken off and landed safely at Queenstown yesterday morning.

Happily there was no loss of life. The vessel springs a leak and disappears; thus setting aside all technicalities and difficulties to be looked for in establishing her case in a court of law. Here is the report of another ship to Australia being lost, the particulars of which we may look for hereafter.

"Intelligence has been received in Liverpool, to the effect that the new iron steam ship *Victoria Tower*, belonging to Messrs. Ismay and Co., of Liverpool, is lost. The *Victoria Tower* was a *splendid iron ship*, of 1,563 tons, built at Liverpool in June, 1869. All hands are reported saved. The *Victoria Tower* sailed from Liverpool for Melbourne on the 24th July last.

And these are just such cases as go to swell our enormous list of wrecks this year, stated by the *Shipping Gazette* to reckon no less than over 2,700. No doubt the *Blanche* had as radical a defect as the *Royal Standard*, but of course it was unknown to all on board. And yet perhaps after all, the people of England have no objection to such a state of things. Amphibious people as they are! what a delicious feeling there must be, in knowing that they are risking their lives in going to sea, with nine-tenths of the certainty of being drowned, if they only go in one of their own country built ships. Still there may be a class among them on shore, who see no enjoyment in that kind of work; but would far sooner profit by it by staying at home, and letting those who like it, or who cannot help it take their chance. 'Tis all the same, and we must content ourselves on the old plan "what can't be cured must be endured,"—for most assuredly the day is yet a very long way off that will see our wrecks diminished, or that will prevent our redundant population from thinning their number annually, by going to sea in unseaworthy British Merchant ships.

In concluding our Review of some of these Nautical topics of the day, here is one of another kind that we find in the *Daily News*, that seems likely to command the attention of our naval officers on some future occasion. If report says truly:—

"The new torpedo must be a formidable monster, if all reports be true. It has been invented by an English engineer, Mr. Whitehead, living at Fiume, on the Adriatic. The first idea of it was suggested by Captain Lupdis, of the Austrian Navy, who proposed to make a torpedo which should float on the surface of the water, and move forward by force of steam—the fore part filled with explosive matter, the after part containing the motive power. Mr. Whitehead modified this design, and produced a torpedo in the shape of a large fish, floating at any determined depth under the surface of the water, the the fore part filled with explosive matter, but the motive power in the after part provided by compressed air instead of steam. This vessel is like a swordfish, with not only a snout in front but snouts projecting from the sides and rising up vertically. Charged with dynamite or nitro-glycerine, the torpedo can make a hole in the hull of the strongest iron-built vessel; and can be made to run forward to its destination, under the water, either in a straight or curved line. The mechanical construction of the monster is kept a profound secret, this being considered safer than the security of a patent; but if the reports can be trusted we shall soon hear of new developments in the system of naval warfare."

It appears that the *Monarch* with the remains of Mr. Peabody, and the *Plymouth* (American) were detained at Spithead by the weather, and did not sail until the 21st December.

We have before us the cream of the information of our own Hydrographic Office, and that of our French neighbours in full accounts of Lights and Tidal Subjects for the use of our seamen. The Phares des cotes Nord et Ouest, and those of the Mediterranean Seas completed up to October, 1869, and also a portion of the Annales Hydrographiques, the third series of the present year, along with our own Tide Tables of the British and Irish ports for 1870, from the industrious computations of Staff-Commander Burdwood of the Hydrographic Office, Admiralty. And we congratulate seamen in general, that their first wants are so assiduously attended to, as they are by the discerning perceptions of the two Governments. Full often in our earlier days have we felt the want of such valuable assistance.

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## To Friends and Correspondents.

Many letters addressed to the Editor having been much delayed by being posted to our principal publishers, we shall be obliged by our correspondents, in future, addressing theirs to the care of Mr. Potter, 31, Poultry, London.

We have received Mr. Aldrich's letter of September.

THE

# NAUTICAL MAGAZINE

AND

# NAVAL CHRONICLE.

FEBRUARY, 1870.

## A Visit to Lord Howe Island,* *Australian Seas.*

All preliminaries having been arranged, we started and cleared Sydney Heads on Wednesday, 26th May, 1869, at 11.30 p.m., for the purpose of going into Newcastle to coal for the voyage, this process being more expeditious and economical than obtaining coal here. After a pleasant passage, with a smooth sea during the night, we arrived at Newcastle the following day at 6 a.m. Tuesday, 27th, berthed at once alongside the wharf and took in about 100 tons fuel from the Wallsend cranes. This, together with stowing away the bunkers, leaving but a few tons on deck, took the greater portion of the day. It was then discovered that the propeller had fouled a line, which had got so firmly fastened round the blades that it was necessary to have recourse to a diver for the purpose of getting it disentangled—

* A case of murder having been reported to the Government of New South Wales as having occurred on Lord Howe Island, on Sunday, the 14th February, it was determined by the authorities that an officer of the Government should be immediately dispatched to enquire into the particulars of the outrage, and vindicate the administration of justice. P. L. Cloete, Esq., the Water Police Magistrate, was the gentleman intrusted with this duty; and he had placed at his disposal the steamer *Thetis*, commanded by Captain Hutton, and a police crew to man a whaleboat. This arrangement was made, in order that the ship's company might be left for the management of the vessel, either in an open roadstead, or in the event of boisterous weather in keeping her under any lee which the island might afford.

An opportunity thus offering for an examination and collection of the *fauna* and *flora*, as well as for the procuring of specimens of the geology of this interesting place, and for the purpose of acquiring generally such information as could be obtained, application was made, and granted, for passages only to Charles Moore, Esq., and his assistant, Mr. Canon, of the Botanic Gardens; to Mr. Masters, collector to the Museum; R. D. Fitzgerald, of the Surveyor-General's Department; and the writer, who was accompanied by "Tombone," an aboriginal of New South Wales.

an operation which did not occupy very long, as the diver exerted himself and liberated the screw. At 5.30 p.m., we cleared Nobby's and steamed in the direction of Port Stephens, and at 8 p.m. the light was abreast of us. From thence, with a westerly breeze and all sail set, we steered E. by N. direct for our destination. The wind having continued fair during the night, and still continuing with the appearance of an increase, the little vessel skipped over the waters in good style, averaging about ten knots. During the night the wind shifted to the S.W. for a couple of hours, and increased the pace for that time to eleven knots.

This Island was discovered by Lieutenant Ball in the earliest part of the history of the colonisation of Australia by Governor Phillip. Its geographical position is in 31° 36′ 30″ south latitude, and 159° 5′ 12″ east longitude. The mountains at the south end are named respectively "Gower" and "Lidgbird," the valley dividing them "Erskine;" the height of Gower is 2834 feet. Off the north end of the island are the Admiralty Islets, distant a mile and a half. Nearer the main there are several other islets, namely, Sugar Loaf, close to the north point; Mutton Bird, on the east; and Goat Islet, on the west; and an islet close to the south point of the land.

Lieutenant Ball further describes Howe Island:—"They found no water on the island, but it abounds with cabbage palms, mangroves, and manchineel trees even up to the summit of the mountains. No vegetables were to be seen. On the shore there are plenty of gannets, and a land bird of a dusky brown colour, with a bill four inches long and feet like those of a chicken. There are also many very large pigeons, and white birds resembling the guinea fowl, which were found on Norfolk Island, were seen here also in great numbers. The bill of this bird is red and very strong, thick, and sharp-pointed. Innumerable quantities of exceedingly fine turtle frequent this place in the summer season, but, at the approach of winter, they all go northward. There was not the least difficulty in taking them. The sailors likewise caught plenty of fish with a hook and line."

This is the first account we have of the botany, fauna, and natural history of the place. Since that time the island has been visited by others of H.M. ships, which had in each case a scientific officer on board.

Friday, 28th.—Fresh breezes from the west with fine weather throughout the day, passengers getting their sea legs better. In the course of the day a land bird, "*Dicrurus Bracteatum*," which appeared from its exhausted state to have been blown from the main, endeavoured to find a resting-place on board the ship, but was so alarmed at the motion and the people, who recognised it as not belonging to the sea-fowl, and who were on the alert to seize it, that it took flight, but came back again on the lee side, when the wind out of the foot of the sail twice nearly beat it down into the water. The poor thing again flew off and went towards the bow, and I think, in its endeavour to get footing, fell into the water: for we saw it no more.

Saturday, 29th.—At 6.30 a.m. land was sighted, distant between

sixty and seventy miles. The first appearance was of two small hummocks on the horizon, which gradually rose till the general features became distinct, and then it was seen that the hummocks were the towering mountains, Lidgbird and Gower, close together, with an elevation of nearly 2800 feet, and constituting the south end of the island. These huge headlands are joined together more than half-way up by a saddle ridge. The valley coming down west bears the name of Erskine; and on the southern end the face of the escarpment of "Gower" appears nearly perpendicular, receding a little northerly, and affording but scanty resting place for vegetation. The top of this mountain Gower is nearly flat, and comprises, according to Captain Field, an area of half a square mile, well clothed with vegetation, watered by small streams, and abounding with woodhens and wild pigs. The mosses hanging to the trees indicate a much calmer atmosphere than is generally experienced below.

The appearance of its near neighbour, *Lidgbird*, would be very similar, but for the existence of a noble dome-like eminence rising out of, but at no great height from its centre, and having precipices of from 100 to 200 feet sheer down from its base. The summit has not been reached, but is crowned with vegetation, and under the walls palms and similar vegetation to the other exist. On a nearer approach and to the S.E., distant from this headland ten miles, "Ball's Pyramid" was descried towering out of the ocean 1810 feet, presenting to the eye at the distance of thirty-five or forty miles a perfectly shaped pyramid, altering only in appearance the nearer we approached.

The main land in a northerly direction began to show its hummocky appearance, dividing as it were the north from the south end. On nearing, the whole became revealed to the view—presenting only to appearance scant and stunted vegetation, diversified by hill and dale with occasional patches of brown as if fires had been in these portions of the island; and which idea was only dispelled on reaching these spots, and ascertaining that the cause was the rufus colour of the under leaf of the ficus blown over by the west wind.

The island is of a crescent form, the western side protected by a coral reef, between which there are three or four passages for boats and two for small vessels of light draft. To the southern opening, opposite Big Creek, at which place I had landed before, our course was directed. But, seeing no signal or indication of inhabitants, we steered along the reef northerly, and as the breeze was freshening the captain had almost determined to run round to the east or lee side, when the northern signal was hoisted, then a centre one also. Our ensign, which had been hoisted, was dipped several times—a signal well understood on shore that we required some one to show the boat-passage through the reefs. We were not long in suspense, as a small boat was soon seen with three hands on board, making inside the reef towards a spot, on reaching which they hoisted a flag on a staff, and waited in that position till our boat got to them.

Immediately Mr. Cloete had his boat lowered, and offered myself and Mr. Moore a passage to the shore, of which we availed ourselves.

As soon as we got to where the boat awaited us, we proceeded to shore and landed at a spot under the direction of Captain Field, where we met two or three others of the inhabitants who had come from their houses. As it was desirable to have the steamer berthed in as snug a position as possible, Mr, Cloete, after inquiries, was advised to send her round to the anchorage on the lee side. One of the shore party—Captain W. O. Spurling, an old whaling master out of Port Jackson—having volunteered for this service, Mr. Cloete therefore dispatched his boat and crew, with instructions to Captain Hutton to take the steamer round to the lee and anchor. The distance from where we landed to the beach on the opposite bay, to which place the steamer had to go, was a little over a mile. In the interim Mr. Cloete gave such instructions to the inhabitants as he deemed advisable, whilst Mr. Moore and I strolled across the island among the avenues of palms, and under the shade of the magnificent banyan trees, and before we got to our destination the steamer had anchored at a distance of half a mile from the shore, in sixteen fathoms, in a very convenient position for slipping away in case of a shift of wind. Our three fellow passengers then came on shore with their camp luggage, and towards evening Mr. Moore and Mr. Cloete joined the ship. I returned to the settlement, and enjoyed the hospitality of Captain and Mrs. Field.

Sunday, 30th.—After breakfast, I walked over to meet my companions and await for the arrival of Mr. Moore. We then all sauntered over the middle part of the island, looking at the various points of interest—the cultivations, the trees, and the people—and arranging plans for active and energetic work for the morrow. We had come to the conclusion, from what we saw during the day, that we might expect to find forms of animal and vegetable life peculiar to the island, as well as intermediate links, and probably *fac similes* of our Australian type. In some instances we were justified in this conclusion, but in others we were doomed to disappointment.

Monday, 31st.—We commenced early, and shot specimens of nearly all the feathered tribe; collected specimens of the flora, examined the rocks, and secured land shells of Bulimus and Helix, and some of the Coleoptera; and after a thorough day's work, with enough to do till midnight in each department, we retired, pretty well fatigued.

Tuesday, 1st June.—We all, with the exception of Mr. Cloete, mustered early, for the purpose of endeavouring to reach the summit of the flat-topped mountain, for the double purpose of getting specimens of two varieties of palms which do not grow below, and some of the brown hens which have been known to exist from the earliest account of the island; and also to examine the difference of existing flora between the up and low lands, as well as the rocks. Accordingly, we started with but scanty provisions and under the guidance of two young men, who had with them two hunting dogs and one holding dog—the latter led by a cord.

Our first part of the ascent was tolerably easy, taking the longer route round by the east side—but we were delighted with the vegeta-

tion,—palms and pandanus—which on approaching the island appeared only like heath, now reared themselves up in the rich basaltic debris to the height of sixty feet. The first ridge gained is called the smoking tree, at the elevation of 450 feet, measured by my compensated aneroid adjusted to sea level before starting. It is necessary to point out this spot, as all the mountains and ravines round about the south of this ridge are the common hunting grounds of the inhabitants, and any animals, goats, or pigs, whether branded or not, caught in these regions, are the common property of the hunters. This recognised rule also applies to a defined portion of the north end of the island, but only so far as goats are concerned. It may not be out of place to describe the method of hunting. The hunting dogs, always loose, though in good command, as soon as they reach the ground are sent forward to seek the wild hogs. As soon as one of these is fallen in with he is bailed up, the holding dog is taken to the place, and after a careful examination as to whether it is a barrow, sow, or young boar, he is let go (otherwise, if it is a dangerous old boar the dog is not loosed); the dog seizes the animal at once, when it is secured, killed, and singed, and carried home, the offal being given to the dogs. Strange to say, they will eat fresh killed and raw pork with gusto—although I never saw a dog, even a famished one, in Australia that would look at raw pig—to use a familiar expression, much more eat it. After reaching Smoking Tree Ridge we directed our course to Red Clay Saddle. Before we arrived at this point Mr. Moore's exertions began to tell on him, in his present delicate state of health. The track became more rugged, and the rocks, concealed by undergrowth, made it very tedious. We halted for a time, and urged on him to return, but to no purpose, and we again started, and not till he was physically incapable of going upward another step would he consent to return. After a short respite, and with a guide, he got back as far as Smoking Tree, and thence he leisurely examined for botanical specimens down a gully, the parallel ridge of which he had before ascended. As agreed, the rest proceeded with one guide to Red Clay Saddle, there to await the arrival of the other guide, who had returned with Mr. Moore. We reached that point and examined successfully for Helix. I noted its elevation as 540 feet. Here we found the second specimen of Myrtaceæ, a Leptospermum, apparently aged, but dead, yet having the seed case in good preservation. We could find no living specimen of the tree in the neighbourhood, but we found the skeleton of a brown hen hanging in a tree, which one of our guides said he had placed there some time ago, but had either forgotten, or could not find it again. Our second guide having returned, we made progress, keeping round the mountain, and in some places huge walls of basalt. In a ravine we saw for the first time one of the palms for which our search was directed. This appeared to be a *Seaforthia*; its fronds drooping over very gracefully in a dome shape cause it to bear the name of umbrella palm, to distinguish it from the others. Several ferns in addition to those already collected were added to the list, making about eighteen. A great deal of toil over sharp rocks and

edged stones brought us to an elevation of 990 feet; and here we had a consultation about the advisability of going onward, as the climbing made it so laborious, and the ground was so slippery from recent showers that it was very difficult to get footing. With the exception of Mr. Fitzgerald and the two guides, we determined to return, as no hopes were held out that the road would be a bit better as we ascended. The black boy was of considerable service, taking us back over our old tracks with scarce a deviation, and we got to the foot of the mountain at dark, but just in time to escape a smart storm of an hour's duration, from which we took shelter in the hut of Mr. Whybrow, who greeted us with a cup of hot tea. We thought of our companion, whose courage and zeal pushed him forward, even with the smallest hope that he would be able to gain the summit of the mountain. After the storm we started for camp, which was reached about half-past nine.

Wednesday, 2nd.—Mr. Masters at camp all day skinning and curing specimens which we had shot. Mr. Carron, myself, and the black boy went towards Big Creek at south end, for the purpose of exploring a gully, both for plants and rocks. We fell in with a new fern or two, but the basalt shewed no change. The party from the mountain returned by the western or nearer route, and got down about 5 p.m., but did not succeed in getting to the top, the ascent being too slippery. Mr. Fitzgerald discovered an interesting specimen of an *epacrid*, and the boys killed a couple of pigs and caught one brown hen.

Thursday, 3rd.—Mr. Cloete having reported that he had concluded his investigations, and that it was necessary for all to be on board by three or four o'clock, so that we might start with the first lull, and as the wind had been blowing hard right in our teeth for the past two days, we thought it probable there would be a shift; we packed up, and had all in readiness for shipment in good time. The investigations of Mr. Cloete were conducted in a most patient and careful manner, lasting the greater portion of three days. All the surrounding circumstances were closely examined—and the place where the act was committed narrowly inspected—the deed was held to be justifiable under the circumstances, and the case dismissed, with a severe admonition to the woman who appeared to have been the instigator and prime mover. This decision gave general satisfaction.

The number of inhabitants at present on the island amount to thirty-five. Their various callings, number of acres under cultivation, and quantity of live stock are appended hereto.

A new arrival on going towards any of the establishments is at once struck with the number of apparently powerful and ferocious dogs—some loose, others chained up,—and at the same time is most agreeably disappointed at their extreme docility. The dogs which are loose are of various crosses—such as fox-hound, bull-dog, and mongrel—are the *hunters;* those which are secured are powerful bowlegged "Bill Sykes"-kind of bull-dog, without his sullen ferocity, and are the *holders*. The dogs are by accident occasionally loosed at an old boar, and catch a Tartar. Captain Field mentioned a most determined

battle in this way. His dog was loosed at a boar, armed with cruel tusks; the dog however, after a few dodges, went in and seized him by the throat; both reared up, and remained in that position for some time, each striving to get the mastery; the dog was victorious, never quitted his hold, threw the boar down, and cunningly held him there without getting ripped until the tips of both ears were cut off as a means of recognition for hunters hereafter in case he should be fallen in with. This is the usual practice when it is intended to let the animal go again, so that the "holder" dog may be at once let go without so much danger.

Pigs and goats are abundant, both wild and tame; those within bounds are known by their markings or brands, and have special owners; those on the hunting grounds are the property of whomsoever chances to catch them. Animals, which are left untended or uncared for, in a short time go wild. There appears to be a predisposition in animals to go wild on this island—domestic pigeons have forsaken the dovecote, and have taken up positions in the mountain cliffs, and have proved the correctness of Darwin's theory, for what were originally pied and mottled are now blue with bar shoulder, with rare exceptions. The island at one time abounded with large wild pigeons—so much so, that within the past twenty-five years, it was no unusual thing for a man to snare by aid of a stick and string, fifteen or twenty birds of a flock without the others taking the least alarm. At the present time not a single specimen could be obtained. The paraquet, also, was a nuisance to the cultivators; once appearing in flocks, now I saw but a solitary pair in their rapid flight through the foliage, and recognised them only by their peculiar noise.

In the olden time, twenty-four years back, a number of cats were sent ashore from a whale ship and turned adrift. These soon became populous, and found an easy prey in the pigeons, parrots, and brown hens, decimating the two former and driving the latter to the mountains. These cats are still numerous and all black, and are always destroyed when a chance offers.

There are no indigenous animals except a small bat. Mice, within the past two years, have accidentally been introduced. These now swarm the island, and promise to become a great nuisance; they have taken to the fields, and burrow in every knoll. As yet (if true) they have been productive of some good, as well as harm. The island, before their introduction, swarmed with centipedes of large dimensions, which, fortunately, did not inflict a venomous or very painful bite; the slight inflammation was local, and only lasted twenty minutes. These, now, however, are fast disappearing, owing, as it is said, to the mice, which must prey upon them. I think, however, that there must be some other cause—probably domestic poultry and the pigs, which are becoming very numerous, root them up in their search for palm nuts; besides, the magpies, which are attendants on the sound of the woodman's axe, seeking, as they always do, insects from the broken timber, may have had something to do in the destruction of the centipedes.

The earliest account of inhabitants residing on the island is in 1833 or 1834. These were Ashdown, Bishop, and Chapman, accompanied by Maori women, and a couple of Maori boys from New Zealand, taken there in the whaling barque *Caroline*, Captain Blenkinsop. The late Mr. R. Dawson, ironfounder, of Sydney, together with a Captain Poole, who it was alleged had been in the army, bought out the first settlers, Ashdown and others, for the sum of £350, Ashdown getting the extra £50 for his improvements. Poole went down as the representative of the firm, and was joined by Dr. Foulis, who had bought half his interest, and the former people vacated the island, returning to New Zealand. In 1843, Wright, M'Auliffe, and Hesketh, with their wives, went to the island in Dawson's little vessel, the *Rover's Bride*. During the same year Mosely landed from the *Jane*, whaler, Captain Fairweather. Mr. and Mrs. Andrews had arrived just before. At this time Poole had a man (Moss) chained up to a tree who had but recently escaped from a ship, and refused to do any kind of work for a living. He escaped from this kind of confinement during a night when the watch was asleep, and took to the bush, vowing that he would burn down their houses and store. This put the inhabitants in great fear; and the buildings were surrounded with casks kept filled with water, in case of need, to put out the fire, and constant watch kept night and day. Some time after, this man (Moss) was recaptured and confined in an orthodox stocks, fitted complete for the purpose, but as it was thought probable that the man would become a cripple in that position night and day, a different mode of captivity was adopted. A large cask, with a convenient trap-door to admit a small vessel in one head, was prepared, and the man firmly and securely headed up, and was in but two positions—standing or lying—for some months, that is, when the cask was either on end or lying down. The cask and man were subsequently brought to Sydney, as also Poole, who was charged with the offence, but the case was dismissed on account, as it was afterwards ascertained, of Poole having bought the man off for £10.

This was not the only cost to Poole, as the man again appeared and levied a further contribution of some £30 or £40, and left the country.

About the year 1846 or 1847 it appears that the island was not sufficiently productive to be remunerative to Dawson and his partners. The whole affair was broken up, and such as liked to remain worked on their own account independently.

This was not to be wondered at, as the early settlers chose the worst spots for cultivation—probably because they were the easiest cleared, and which consisted of the detritus of coral and calcareous rock worn down by the desiccating influence of the solar rays to a dust resembling coarse sand.

Subsequently, other arrivals, either by design or accident, augmented the population. It was a custom for whaling captains to leave their families for a season and join them again, after a short stay for the purpose of getting vegetables and fuel as well as other provisions, before cruising on what is called the middle ground; those who came

by accident left again as soon as chance offered and inclination led them to do so.

The present population appear to be poor from the fact that their supply is far above the demand, and no means of regular transit. This was far different in the golden times of California, when whale-ships and other vessels called to get supplies in exchange for various commodities.

The supplies now remain on hand, less cultivation is needed, and the people are living from hand to mouth, and are chiefly engaged in the cultivation of maize and potatoes for home consumption, and onions for the Sydney market, or the whole to supply any ships which may call in need of necessaries. Turkeys may be obtained in barter or cash at ten shillings a pair; fowls, three shillings; ducks, three shillings; geese, twelve shillings; pigs and goats, at threepence per pound alive, or weighed as they stand. Fuel may be had at five dollars or £1 a cord, cut and stacked on the beach; and water at any season from the big creek, at the south end, west side, but it can be only rafted out by boats. There are a few rabbits, which fortunately are confined to a small island on the west side, between the shore and the reef. At the present time the crops yield from 300 to 400 bushels maize a year, twenty-five tons potatoes; these are good flavoured but rather waxy, and are found to be the most suitable for shipping purposes, as they will keep from season to season; any others which have been tried have failed in this respect.

Onions from thirty to thirty-five tons—pumpkins, melons, *ad libitum*.

*(To be concluded in our next.)*

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## CALIFORNIANS AS LEFT BY THE SPANIARDS.

THE habits and manners of the people of California partake in a great measure of those of the ancient colonists of Spanish America. They have preserved most of the good and bad qualities of their Spanish ancestors, and unhappily many circumstances have of late contributed to make the latter worse than they originally were. The intercourse of strangers by introducing bad habits of luxury among them increased their wants, and excited them to the plunder of the missionary establishments. The disorganization of the Spanish militia, has rendered them less brave, and their natural desire for gaming and drunkenness, particularly has increased to such a degree that it is rare to meet a Californian who does not carry at the pommel of his saddle by the side of his weapons a bottle of brandy. Their general observation in reference to this is, "The bottle for my friend and the weapons for my enemy." These men who are a fine race of people never go on foot. Their first morning care is to saddle their horses, tethered to the door of their house, and which they use for going distances even

less than fifty paces. Their life is passed in most complete idleness. A Californian colony is never to be seen travelling. If you enter a rancho (*cottage*), the men will be found lying down smoking and drinking brandy; the women only are occupied a little in agriculture and gardening. They also employ some few Indians.

The women are generally on a large scale and strong, and have preserved the characteristic beauty of the Spanish peasantry. It is not uncommon to see them with a dozen or fifteen children, which, with the numerical superiority of the men, explains the rapid increase of population in California. Out of five thousand inhabitants of the European race, some six hundred foreigners may be found, men whom the women prefer to their own country people, because they are generally better labourers, they treat them better, and take more care of their children. The occupations of the women are more active, the greater portion of labour usually belonging to men devolves upon them. They manage the horses and the lasso with as much skill as their husbands, to whom also they are superior both in point of intelligence and moral qualifications.

As the number of foreigners increases every day, it is to be feared that before long some disturbance will take place from the immense disproportion between the male and female population.

The salubrity of the country is such that the illness of the colonists is never to be attributed to the effects of climate. They as well as the Indians of the Missions vaccinated by the Monks are exempt from fevers and small pox, which decimates the native Indians. Instances of longevity are not rare, and there are many who have attained their century of years, which is remarkable from the small amount of the population. There are no doctors in California. Their presence is not necessary. But in cases of surgery, such as fractures occasioned by falls from a horse, or wounds caused by quarrels, like the Arabs and other half civilised people, the Californians imagine in their simplicity that foreigners know every thing. Hence it is, that on seeing any one who appears to them above the middle class of life, they importune him to remove their maladies, and oftentimes the person who is thus applied to to-day about a broken limb, is requested to-morrow to repair a gun or a watch, or to afford the means of blowing up a mine, or to construct a mill.

The Californians, who may be also said to be born on horseback, are the most intrepid horsemen that can be imagined, and the exorbitant bets they make with each other on the performance of their feats, contribute not a little to their ruin. We have seen peasants risk one and two hundred heads of cattle on the swiftness of their horses. They are also given to gaming with cards, generally those of hazard, also to cock fighting, and, par excellence, to bull fighting, and fights between bulls and bears! In order to set these latter against each other they tie one by the right hind leg to the left leg of the other. In these encounters the bear, which is the most adroit, generally comes off victorious. The moment the bull lowers his head, he plunges his claws into his nose, and with the other paw rips open his breast. The

poor bull very seldom extricates himself from this condition, even by piercing his antagonist with his horns.

These exhibitions come off at the meetings which take place at the festivals of the Missions, and during the Herraderos (called also Rodeos). On these occasions the inhabitants throw off their habitual apathy and are indefatigable after pleasure. They will continue the dance for two days and nights without other interruption than what is actually necessary for refreshment. When a marriage takes place, when every fête common to the country is celebrated, convoys of waggons may be met on the roads drawn by oxen, and full of women, old men, and children. These waggons, of very simple construction, are furnished inside with hides, having very low wheels formed of a single piece of wood. At other times whole caravans may be met containing from thirty to forty persons of both sexes and all ages, galloping along, playing violins, guitars, and other instruments.

The first care of a Californian in meeting you is to shake hands with you, to offer you some brandy, and then to ask your name, profession, and the object you have in view. Having given satisfactory answers to all these questions, he invites you to accompany him to the Rodeo of his uncle, or perhaps to the marriage of his cousin. If you accept the invitation you are sure of being well received, but very often these estimable relations live from a hundred to a hundred and fifty leagues from the place where the invitation is given. Nearly all the colonists descended from the Spaniards, being related to each other, these excursions frequently take place. The people themselves appear to consider it the easiest thing in the world to take a journey of two or three hundred leagues for a few days' dancing.

In the month of August, 1841, a caravan containing about thirty persons, men and women, set out on this kind of expedition from the Mission of San Francisco Solano to the Russian establishments, merely for the purpose of celebrating the birthday of the governor's lady. Departing in the morning they arrived in the evening, danced all night, the following day, and all the next night. Then at five in the morning of the third day, after saluting with a general "viva"!! under the windows of Madame de Rotscheff, who had retired early, the party returned home at full gallop, without having taken one moment's repose!

I visited for the second time the Russian establishments, and on one dark night in crossing a wood full of bears, the horse of my guide became frightened and run away with him. I was left alone for some hours, firing off my gun occasionally to frighten away the animals, and in the hope of attracting some one to answer these signals. About eleven o'clock, having arrived on a plain, I distinguished at a distance a large fire, about which were moving two objects of human form. On approaching them they became more distinct, and I soon recognised two men grotesquely disguised as Turks, and dancing on the tight rope, I learnt on dismounting that these young performers were the two drummers belonging to San Francisco, who had come merely to amuse the Russians.

It is related that the harbour of San Francisco, one of the finest in the world, was discovered by an inland expedition about as late as the year 1770. The northern extremity of the harbour is called Whaler's harbour, and communicates with a strait about two miles wide, with the bay of San Pedro, a circular basin of ten miles diameter. Another strait on the north eastern side of this basin leads into Freshwater bay, a basin of nearly the same dimensions as the former. It is full of islands and receives the waters of the rivers Sacramento and San Joachim. These waters, it is said, are navigable for large vessels, and as the rivers drain vast tracts of country to the S.E. and N.E., the harbour affords excellent accommodation for vessels of all sizes, bearing the commerce of the whole Pacific Ocean. But San Francisco, notwithstanding its advantages, has hitherto been as little known as the Californians themselves. Notwithstanding the advantages of Whaler's harbour, the whaling ships have gradually forsaken it for the Sandwich Islands, inferior as they are in resources to San Francisco, a place where beef may be had for little or nothing, where hemp grows wild, where the pine offers an inexhaustible supply of resin, and where suitable timber for ship building is ready within an easy distance. The Sandwich Islands, however, afford an ample supply of labour at a reasonable rate to ships fitting, but San Francisco has an indolent population, although abounding in horses and cattle. Bnt the whaler is forbidden by law to stay in San Francisco more than forty-eight hours, unless he has previously paid duty on the whole of his cargo at Monterey.

The small trade of San Francisco is at present in the hands of foreigners, principally Americans, the foreigners being in proportion to the Californians as one to ten.

We shall conclude these few remarks on the Californians with the following description of the powers of the lasso. The writer says,—

"A band of wild horses had been driven into a pen or corall, the door being thrown open, Don Salvador and one or two others entered on horseback, the former having the lasso coiled up in his hand, and then with a dexterous arm secured in the noose the neck of a fiery young steed. After plunging and rearing in vain the animal was thrown down with great violence. He was however soon again on his legs, and the Don having attached the lasso to his saddle dragged him tottering out of the corall, till with eyes starting ftom his head, and nostrils fearfully distended, the animal fell panting and groaning to the ground. The lasso was now slackened and the animal recovered his breath, but infuriated with rage, he started away at full speed, the Spaniard of course following. Another person now spurred forward his steed, and overtaking the victim, seized him by the tail with his hand, and watching a favourable moment, threw the animal by a jerk to the ground, sufficient to break every bone in his body. A second horse was then caught and thrown down in a manner still more painful. The captor suddenly stopped his horse when at full gallop, which being well trained to do, threw its weight toward one side in expectation of the impending jerk, while the captive steed was instantly pitched

head over heels to a distance of several yards. Another of the party, whether by accident or design, dropped his lasso (of which the other end was attached to a wild horse galloping at full speed), and following till he came up with it as it trailed on the ground, he stooped to it from his saddle and picked it up without slackening his pace for a moment."

With all their dexterity and experience, however serious and fatal accidents often occur. There is a peculiar danger to which the thrower of the lasso is exposed. The country saddle has an elevated pommel, round which the lasso after noosing its victim is rapidly twisted, an operation in which the captor not unfrequently sees the first finger of his right hand torn off in an instant. Such evils of course are aggravated for want of proper assistance. It is related of a certain general, that while engaged with the lasso he contrived to dislocate his hip. The joint was replaced, and he was doing tolerably well until he bruised it slightly, when he sent a messenger to the only practitioner at San Francisco (one Bail, from Manchester) for a strengthening plaister. But the doctor, who sometimes takes doses very different to those which he prescribes, sent a blister of Cantharides, which being supposed salutary in proportion to the pain produced by the application, was allowed to work double tides on the poor general's bruise so as to turn it into a very pretty sore, which soon sent him to his bed, and kept him there longer than he desired. Of the Indians about San Francisco, although they are generally well formed and well grown, there are many instances of poverty and wretchedness. They are besides a prey to several malignant disorders, among which an hereditary syphilis is the prevailing scourge of old and young. They are badly clothed, badly lodged, and badly fed. As to clothing they are pretty nearly in a state of nature, as to lodging their hovels are made of boughs wattled with bulrushes, in the form of bee-hives, the hole in the top for a chimney, and two holes in the bottom, either of which, by being closed, excludes the prevailing wind. Their food consists of the worst of meat, the bread of acorns and chestnuts, laboriously prepared by pounding, rinsing, and grinding. They seem borne down to the earth by the toils of civilization, superadded to the privations of savage life. They rather vegetate than live without the wish to enjoy their former pastimes, or the skill to resume their former avocations. Such is the picture left by the Spaniards of the civilized aborigines of California about half a century ago. The population of San Francisco alone is now some hundred thousands of souls.

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## Description of the Shores of the Philippine Islands.

*(Continued from page 31.)*

### Description of the Mindoro Coast.

*Between Polo and Point Calavete.*—The Coast of Mindoro from Polac to Naujan is bold, so much so, that at a mile from it there is a depth of fifty fathoms.

From Naujan to the N.W. for about twelve miles it is sandy, with several rivers, but not one of them is of any importance as far as the S.E. part of the headland of point Calapan or Tibas. This is moderately high, thickly covered with trees, and has a cogonal* tolerably conspicuous. About N.N.E. of this headland two and a half miles and at three cables from it is the very small Islet of Silonay, of moderate height, surrounded by rocks and appearing like a sugarloaf.

*Channel between Silonay and Mindoro.*—The channel between Silonay and Mindoro is only fit for large boats, and such craft, for in the middle of it there is only a depth of three to five fathoms sandy bottom.

*The greater Silonay.*—In the same direction, about half a mile further, is the greater Islet of Silonay, surrounded by rocks; those off the northern point projecting furthest being about a cable and a half from it. The channel which it forms is about three cables across, and is navigable by all classes of vessels, having twenty fathoms in it, coarse sand,

*Coast between the S.E. part of Calapan Headland and Point Calapan.*—From the S.E. part of the headland of Calapan the coast (moderately high) trends N.W., and at a mile from it is covered with trees; there are rocky heads near the shore, being offsets from the headland.

*Anchorage.*—Anchorage may be had on the whole coast from Naujan, as far as the S.E. point of Calapan, especially in the season of the collas, or southerly monsoon, should a vessel require shelter from these winds. The shore is tolerably steep, with bottom of fine sand and occasionally clay. So that to take up a convenient berth in twenty fathoms it is necessary to anchor near the shore.

From the above point the coast continues south and S.W. making almost a semi-circle, and at the distance of a short mile from the beach stands the town of Calapan, and at a cable and a half to two cables from it in the interior is the rivulet of the same name. From this same rivulet the coast continues to the west, making a small sandy bay; and at the distance of a short half mile is a point covered with trees, which point is the S.W. of the little bay of Calapan. There is a sand bank however in it a short half mile to the north of the town, which bank is about a cable across, with four, three, and two fathoms on it, from which also a bank extends to the south along the shore of the bay to the S.E., with the same depth on it. In order to keep clear of it, either entering or leaving, it is necessary to bring point Calapan on with the island to the north of the Silonay islands, when the vessel will have forty and fifty fathoms water, from whence if running into the bay the depth will decrease. When she has thirty to twenty-five fathoms she should anchor immediately, because if she gets to the southward she will ground on the bank. When a vessel is not obliged to take this route, it will be safer, both for entering and leaving, to go by the channel between the coast of Calapan and Baco islets. And if she has to go to the anchorage as soon as the S.W. part bears north she may take the most convenient course according to the season.

*Cogonal, we believe, is a local term expressive of a kind of battery.

*The Bacos.*—North of Calapan town about three and a half miles is Baco islet, the northernmost and least of them. The two others lie N.E. and S.W.; but they are all foul, and about midway between the northernmost and the middle one there are rocks above water. There is, however, sufficient depth in the two channels, but the navigator must beware of the current.

*Coast between the S.W. point of Calapan Bay and the River Baco.*—From the S.W. point of Calapan Bay, point Balete, the coast continues of moderate height, and covered with trees, and at about a short mile to the S.W. is a slightly projecting point which is the N.E. point of the river Baco. A sandy reef stretches out to the northward from it with rocks on it for about three to three and a half cables, and between this and the former there is a small rivulet.

*River Baco.*—From this point the coast trends in the same direction, of the same character, and at the distance of half a mile is the mouth of the river Baco, about half a cable across and with one fathom on its bar at low water. The mouth of this river is nearly S.W. of Baco.

*Visita of Subang.*—From this river the coast continues with its usual height, covered with trees, and varied by small bays to W.S.W. and west making a slight bend; and about two leagues further is the town of Subang seated on a small height. About N.E. of it is the extreme of a reef extending from the eastern shore of Subang, distant about half a mile, on the edge of which there is four and three fathoms water. This must be carefully avoided, for the water by which it is covered *does not change colour*—being the same as that of the gulf.

*Anchorage.*—On the whole coast referred to, from Calapan to Subang, anchorage may be had in any desired depth, the bottom for the most part being sandy.

*The Bantay* Brook of Subang.*—On the beach in this part is a *Bantay*, and at a short distance to the eastward there is a small stream of fresh water, and another to the westward, also about half a mile. The high ground of Mindoro on this part of the coast is also close by them.

*Coast between Subang and Bay of Baredero.*—From the brook to the west of the establishment of Subang the coast trends N.W., high and well wooded, with slenderly salient headlands. And at scarcely two leagues off it is the bay of Baredero, about three cables to its head. It affords good shelter to boats of the country, and the fresh water stream of Taguray falls into it.

*Coast between Baredero and Escarseo.*—From the mouth of the above stream the coast continues about N.E., covered with woods, and varied by headlands, which do not reach far out, and at the distance of two and a half miles is the headland of Escarseo. This is also rocky and steep to approach, and the rocks are both covered and uncovered at a very short distance from the shore. The bottom is also rocky here.

The whole coast between Subang and point Escarseo is steep to, with

* The meaning of this term is not expressed.

rocks off it, excepting the shores of the bay of Baredero which are sandy. In all parts of this bay there is anchorage of twenty to twenty-five fathoms, coarse sand, at two and a half cables from the shore.

*Coast between Point Escarseo and the N.E. point of Port Galera.*—From point Escarseo the coast trends nearly west, moderately high, with here and there a sandy beach. The points do not extend far out, and have rocks off them, and at a good half a league onward is the N.E. point of port Galera. This is high and covered with trees, and has a white mark on its side that appears like a sail. This affords a good mark for entering the port by its northern mouth. The coast from point Escarseo to the N.E. point of this port is foul with rocks steep to. From this point the coast continues south, S.W., and west, forming a semi-circle, with several headlands and bays, with abundance of reefs on a bottom of coarse sand.

On the north headland at the southern part of this port there are two islets, and the outer one on the above bearing is that which forms the port called Silanga, with two entrances, one to the north and one to the south. To enter it by the northern one the mark like a sail on Galera is useful. The points of this mouth have off-lying rocks half a cable from them, which coasting vessels skirt to get into it.

*Entering Port Galera by the northern mouth.*—To enter by the north mouth it is necessary to get mid-channel between the islet and the Mindoro shore, in which she will carry from seven to nine fathoms coarse sand and stones. The mouth is about a cable and a half wide, which width gradually decreases inwards to one cable, it is also low with a sandy beach, and from thence the shore passes the islet to the S.W.

*Current.*—The current in this mouth is very strong both on flood and ebb tides, and on this account great care is necessary in using it either going in or out; admitting that a vessel finds a stream of current when she is in the entrance it would be difficult for her to avoid getting on the reefs extending from the points, and thus every vessel that has not sweeps is exposed to this danger.

*Good Anchoring ground in Port Galera.*—The best holding ground in port Galera is near the shore of the island. About half or quarter of a cable from it there is a depth of seven to nine fathoms, coarse sand and sometimes bits of stone. All the points and headlands of the main coast forming this port have rocky reefs off them, much of them being dry at low water.

*Western Mouth of Port Galera.*—The western mouth of this port is formed by the south shore of the said island and the northern shore of the island to the southward. The width of it is about a cable's length, and the outermost rocks are those from the shore of this southern isle, on which account, in entering or leaving it, it is necessary to keep to the southern shore of the northernmost isle, which is not only cleaner but is steep to approach.

To the west of this mouth close to there are ten to twelve fathoms mud with a few stones; but when inside the depth increases to fifteen, sounding coarse sand.

*Current.*—The current in this mouth is fully as strong as in that to the northward, and hence this port of Galera can only be of service to small vessels, and moreover it must be observed that it can give no supply of fresh water. To enter by the western mouth, as soon as a vessel is abreast of point Minolo, and pretty near it, she should steer for the middle of the northernmost isle, and very soon a cluster of trees will be observed (called Pajos, hence the term used by the Derrotero *Pajonal*) near the S.W. point of the said isle, for which cluster steer until the mouth be seen open.

*Coast between the west mouth of port Galera and point Minolo.*—The shore of this isle to the N.N.W. and west is fouled with rocks, some of which lie a cable from it. From the western mouth of the port, the shore trends S.W. and west, making a small bend, with sandy beaches separated by salient points, and at the distance of a good league, is point Minolo, which is of moderate height and well covered with trees, mostly Pajos. On its eastern part is a large beach where vessels may anchor, if necessary, on a bottom of coarse sand and gravel. At three cables from the shore the depths are twenty-five and thirty fathoms.

From point Minolo the coast follows a W. by S. course, and at nearly eight miles from it is the N.E. point of a bay called "Abra de Ilo."

*Bay of Abra de Ilo.*—The coast from this bay to port Galera is bold, and may be coasted at half a mile distant without risk. It is of moderate height, with various headlands and small beaches. The high ground also is tolerably close to the shore, from which two small streams of fresh water descend to the shore, one of which is called Mallas, and the other Cameron.

About W. by N. of the N.E. point of Abra de Ilo, at the distance of about five miles, is its N.W. point. The head of this bay is scarcely half a league inshore with a low sandy beach, and here and there rocky. Nearly in the middle of it is the mouth of a small river, inside of which the depth is two fathoms, the water fresh.

*Anchorage of Abra de Ilo.*—Vessels of any draft of water may anchor in this bay, especially in the season of Vendavales. The anchorage is everywhere on a sandy bottom; yet it is necessary to ride with whole cable; for even in this season heavy squalls of wind come into the bay, the two opposite shores forming a tunnel in a S.W. direction with the middle of it extending as far as the river Mamburao on the west shore of the island.

From the N.W. point of the said Abra, the shore continues moderately high, and thickly wooded about west and W.N.W., making various headlands and sandy beaches as far as a point which is the northernmost of this whole headland, N.W. of point Calavite, about four and a half leagues distant. This is generally called point Calavite, but is also named point del Monte.

To the west of this point the shore is formed by a small sandy bay, the beach sometimes rocky with good depth. It affords shelter from winds between east and west (to the south), and small vessels, such

as launches, etc., find shelter in it from easterly winds close to the shore.

*Watering.*—Water is easily obtained here as it comes down a small channel to the beach.

*Headland of Point Calavite.*—From the same point on the shore W. by S. with beaches of sand and rock to another point distant about two and a half leagues : which point has also the name of Calavite.

*The green point of Calavite.*—From thence the coast follows to the S.S.W. of the same character, and at the distance of a league and a quarter is the real point Calavite. The whole coast between this point and Abra de Ilo is tolerably bold with off lying rocks, and may be coasted at half a mile from it, even by a large vessel.

It should be observed that the depth on the bars of the rivers vary annually under the influence of the wind de travesia.

## On the Tides in the Strait of San Bernadino.

*Supposed Currents of the Strait.*—Our acquaintance with the movements of the waters in the strait of San Bernadino is exceedingly scanty. After many observations on the tides of flood and ebb, the heights they show, and the direction they take, we have inferred that they do not exhibit that regularity which would enable us to foretell the times of high and low water. The complication is so considerable that is produced by the forces which influence these waters, that only from close and extended observations, and a thorough knowledge of the hydrography of the space observed, of the winds which prevail in it during the year, and a lengthy calculation and tabulated statement, could rules be deduced that would be worthy of any confidence.

*Irregularity of the Tides.*—But looking at the tides of the strait without this assistance, so much confusion appears, that the most experienced navigator would be confused by it, for he would see that not only at the day of new moon in March the high water at a point in the strait takes place at noon, but it does so at the same time at new and full in August; that if in some months of the year there are two tides in the twenty-four hours at nearly the same intervals, the same is found in the other months; and that if the rise and fall of the tide be two feet in the day, that of the night will be six or eight. Hence, then in the absence of rules to be depended on in this subject, the following information will at least be useful.

*Set of the Tides.*—*Firstly.* That the point on which the pilots are mostly agreed is that in the channel, the water begins to rise at about two hours after the moon is up.

*Secondly.* That the greatest rise and fall is nine feet and a half.

*Thirdly.* That from the eastern mouth of the strait to about the meridian of Bondog the flood sets westward, and the ebb eastward when it falls: and that from that meridian to the western mouth of the strait, the reverse of that takes place.

*Fourthly.* That from the eastern mouth of the strait to the above meridian, the stream of flood runs longer than that of ebb in the N.E.

monsoon; the reverse being found in the S.W. monsoon, and the opposite condition to this is found in the western part of the strait.

*Fifthly.* That the night tides are commonly higher than those of the day.

With the foregoing considerations the navigator may be advised that on entering the strait, he should immediately look to the state of the tide, and follow up his observations closely while he is in it, and to depend more on what he sees than on any calculation.

*What is necessary for a knowledge of the set.*—Admitting that he reads these notices with the chart of the strait before him, and has some acquaintance with principles, he would easily obtain some knowledge of the tides in it: for the direction of the current may be inferred from the configuration of the shore, the effects to be produced by points and bays, the breadth of the channels as well as their depths. But as the majority of seamen, who navigate these channels, may not consider the foregoing sufficient, let us state the experience we had in the short time we were in the strait.

## *Observations.*

In the observations which we are about to make, we ought to mention the waters that enter and leave the Strait of San Bernadino, resulting from those which pass through the straits of Juanico and Panaon, but in order not to complicate and lengthen these instructions, we prefer not to do so.

The greatest strength of the currents in the Strait of San Bernadino may be considered as about six knots an hour.

*Division of the Streams.*—The neighbourhood of Bondoghead and Point Arena may be considered as the parts, where in flood tides, the streams of tide enter by the eastern and western mouths, and those, where on the ebb, the waters separate, to return through the mouths by which they entered.

*Duration of the flood Stream by the mouth of this Strait.*—In flood tides the waters which enter by the channels formed by the S.E. point of Luzon, those of Viry, the isle of San Bernadino, and the N.W. extreme of isle Samar unite together, following various courses between south and west. In the mouth formed by point Baliquatro, with the S.E. point of Luzon, they assume a direction nearly south, they run between the said points and the Ticlines channel, with force proportioned to the small breadth and depth of these channels. Leaving them they separate in different directions; but they receive their first check at the north point of isle Capul, and the islet of Culantas, at which points they form breakers, the foam of which would lead one to believe that this islet is formed of white sand, while it actually mostly consists of black pebbles.

The reaction of the stream here produces many eddies, especially between the Culantos rock, the Ticlines channel and the isle of Luzon.

The waters which enter by the channels formed by the islands Capul, Dalumpiry, and Samar, also run very strong, especially in the first.

Those which enter Luzon and Capul take a course between south and west, setting direct for the Naranjos; around which many different currents proceed from the various channels formed by these islets.

Of those which run between the south coast of Luzon and the Naranjos, part of them flow along that coast, and of the rest which take directions between west and north, a part takes the little channels between Masbate and Ticao, another traverses the east shore of this island, and another takes the channel between that island and Luzon.

On the southern parts of the isles of Dalumpiry and Capul, currents are found setting in various directions, some running obliquely to each other or nearly in opposite directions, producing many whirls. But in separating to the west, and arriving in the channel between the islet Dastacado and the Naranjos, if not very near these, the current is not strong nor variable in its course.

In the south part of the strait, that is from isle Masbate to Mindoro, the currents are not strong, excepting off point Arena, where they gain some force from the waters which enter and leave the bay of Piris. But from the meridian of point Lobo, as far as that of point Santiago, the stream runs with more or less strength as the channels become narrow, or more tortuous. And in spring tides they have a rate of three to four knots in those formed by Luzon, isle Verde, the north extreme of Mindoro, and the Bacos.

*Course of the ebb between point Lobo and Calapan.*—When the ebb stream passing the waters by the mouth formed by points Lobo and Calapan to the westward on various courses, the principal being south and S.W. to enter the bay formed by points Calapan and Escarseo; and the other to N.W. to pass between isle Verde, and divides itself into several parts, one runs along the shore of the said isle, and another forming the reverse, joins those which run to the S.W. and N.W.

*Counter Current off point Escarseo.*—Off point Escarseo is a considerable counter current, whence the streams take different directions; and thus, on the ebb off this point a counter current of considerable strength is found setting eastward.

Between point Calumpan and the north part of isle Maricaban, and between the north point of isle Verde and point Macoto, the current runs with considerable strength; but from the latter part to the westward, the current again becomes slack.

On the opposite tides the currents assume nearly the opposite directions.

[Translated from the Anuario de la Direccion de Hydrografia, Ano VII., Madrid, for 1869.]

*(To be continued.)*

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## THE SUEZ CANAL.

SIR,—When the admirable paper of General Superintendent, General Sir William Denison, on the Suez Canal, was read at our

Institution of Civil Engineers, and some *couleur-de rose* statements on the subject came from well paid professional advocates that I knew to be incorrect, and who said that "they could not be accounted for except by the use of Aladdin's wonderful lamp," I hardly expected such early and strongly corroborative proofs of the correctness of my own statements would appear in the *Nautical*. The western pier was said to have been "completed for a length of 1500 metres." But I knew well that to be impossible on account of the small bulk of concrete blocks which had, up to that time, been deposited in the line of the pier, in proportion to the quantity actually required, even without any allowance for sinkage into the bed or shore of Nile mud and sand, the quantity really required was tolerably evident, from the accurate borings which had been taken. All accounts now say that there is a vast amount of sand and Nile mud, even at this time, drifting through the concrete block mole; now all this must be lifted by dredging out of the channel until the mole is made impervious to any passage through it. Then there will be a change; but that change will shew itself in a direct passage for the sand and Nile mud round the mole head into the harbour of Port Said; and an increased deposit in the eddy to the eastward, produced by the moles of Port Said, raising to a still greater extent the mud bank that is gradually forming what will hereafter be the New foreshore, or northern boundary of "Lake Lesseps." This lake was foretold in my paper on the Suez Canal scheme, that appeared in the *Civil Engineer and Architects' Journal* of June and July, 1860. In that paper I made a quotation from the able memoir on the same subject, by Captain Spratt, of the Royal Navy* to the effect "that Alexander the Great was wiser than M. Lesseps admits, when he listened to the local opinion regarding the influence of the Nile upon his harbour, if formed to the Eastward of it."

I have read with great interest in the January *Nautical* the useful information contained in Commander C. S. Nares' directions for the pilotage of the Suez Canal. And yet fair, and even friendly, as it appears to the scheme, still it conveys points strongly illustrative of the difficulties attending it. Thus is shewn that it is only a high spring tide in the Red Sea that gives a perceptible rise of tide at the South end of the smaller Bitter Lake. This perceptible rise also, before the canal between it and the Red Sea is materially encumbered by that inrush of sand with the flood-tide which "was running one and a half knots at Chalouf, increasing to two, or two and a half knots at Madama, with the water very much discoloured."

How much of the lift of six inches (observed at the southern entrance of the Bitter Lakes) is due to the increased head and consequent discharge into the Bitter Lakes, *while still unfilled?* This has yet to be determined by accurate tidal observations from a fixed datum. It is however admitted that it is only during high spring

* Which was ordered by the House of Commons to be printed, on the 9th of February, 1860.

tides that any tidal lift is apparent, and that neap tides extend but a short distance from the Red Sea. No doubt is therefore left in the minds of any reflecting person, that the Suez Canal is, practically, what the late eminent and honest engineer, Robert Stephenson, foresaw it would be, very like "*a stagnant ditch!*"

The account Commander Nares gives of the "sand drifts," to which the Canal is subject for thirty-five miles of its length, is in the highest degree discouraging. Although that gentleman speaks of the "good coating of sand which has formed at the bottom of the Canal in the sandstone cuttings," this although very good for preventing injury to ships' bottoms, is a very damaging deposit in the Canal itself, and tells pointedly as regards the effects of the sand drift. One of our highly scientific admirals, whose name I have not authority to mention, observed lately to me, that "a ship of two hundred feet in length, if arrested in her course by meeting such squall or sand drift, would soon produce a sensible effect on the bed of the Suez Canal."

I have just taken up the *Pall Mall Gazette* of the 7th January, containing an account of Mr. Bateman's paper, on the Suez Canal, that was read at a recent meeting of the Royal Society. My friend, Mr. Bateman, is a scientific and distinguished member of the Institution of Civil Engineers, and received "the unanimous thanks of the Royal Society for his extremely lucid, simple, and excellent paper." That it is quite a simple one we shall soon see. Mr. Bateman, has returned hot from Egypt where perhaps he represented the Royal Society among the distinguished guests of the illustrious Khedive. But alas for his past great credit for discernment! what are we to say for Mr. Bateman's flourish in favour of Mr. Hawkshaw at the expense of the reputation of the late Robert Stephenson, and the humble individual who writes to you now? Mr. Bateman, in the discussion which followed his paper, said, "he had purposely avoided speculation, as after the erroneous and unfounded conjectures of so many of his professional brethren, he did not like to risk any little reputation he possessed upon personal engineering theories. He had recorded facts merely."

Now Mr. Bateman announces as a fact, that the Canal and Lakes, "were filled by the beginning of October, thus belying one of the many unfavourable prophecies, that the absorption and evaporation would be so great that they would scarcely fill." He adds, "On our voyage through, on the occasion of the opening, there was a current against us towards the Mediterranean extending from Port Said to near Lake Timsah. We anchored about three quarters of a mile from the end of this portion of the Canal, and at daylight the next morning, there was a current in the same direction of nearly one and a half miles an hour. The time of starting from Lake Timsah was purposely delayed till near mid-day in order that we might have the tide from the Red Sea against us, and deep water over the rocks at Serapeum. The current from the Bitter Lakes towards Lake Timsah was strong, and on the following morning between the Bitter Lakes and Suez it ran in the same direction at three and a half miles per hour, *but a*

*strong southerly wind accompanied the tide.* My impression is that at this season of the year there is on the average of the day a regular current from the Red Sea to the Mediterranean."

I have fully and fairly quoted from Mr. Bateman's paper, and do maintain that that gentleman's observations are all erroneous. Firstly, *I* say that Lake Timsah and the Bitter Lakes were not filled at the time of his observations. Secondly, That any current that he witnessed there was simply due to the influx of Red Sea water into the previous dry Lakes of Timsah and the Bitter Lakes, or that it consisted of a superficial current in the process of filling these lakes, from the effects of the then strong southerly wind. So scientific a man as Mr. Bateman must be aware that the small lift of tide at the head of the Red Sea is quite incapable of producing the rate of current which he had quoted as running in the Canal either in the Bitter Lakes, or the Canal to the northward of them. Indeed we have the unquestionable evidence of Commander Nares, that "the tidal influence of the Red Sea is, even during spring tides, utterly absorbed or lost in the great area of the Bitter Lakes." He tells us in page 47 of the *Nautical* of last month, that "*There is no tide or current in Lake Timsah or the upper Bitter Lakes.*"

Commander Nares tells us that "*the tidal influence extends from Suez to four miles north of the southern end of the Bitter Lakes.*"

Also, that, "A spring tide rises six feet at Suez, two feet at Madama, one and a half feet at Chalouf, and half a foot at the south entrance of the Bitter Lakes."

"*At Kabiet there is no rise and fall.*"

The observed rise of six inches at a distance of four miles north of the south end of the smaller Bitter Lake is due to the contracted nature of that part of the Lake, and would have been at once lost had the Lake been broader there.

I come to the conclusion that Mr. Bateman has presented us with some illusions instead of facts, and when he at some future period sees with the eyes of a harbour engineer, or able nautical surveyor, like Commander Nares, he will confess his mistakes and tell us that there is no tide, where he (Mr. Bateman) once thought he saw it run, and that the Canal is but stagnant water for nearly the whole of its length: and lastly, he will express his regret that he had not brought his talented mind to bear more carefully on the subject, amid the distracting influence of the spectacle which he witnessed as one of the honoured guests of the Khedive.

I am, Sir, your obedient Servant,

W. A. BROOKS, C.E.

The Grange, Puckeridge, 8th January, 1870.

*To the Editor of the Nautical Magazine.*

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[With the view of preserving here the latest intelligence of the Canal, we annex the following from the *Mechanics' Magazine.*]

The latest information published by the *Official Journal* of the Canal, gives the following among other information. It quotes two telegrams, in the first instance—one dated Ismailia, December 27th, the other Port Said, December 30th.

The first runs thus:—"The steamer *Stirling*, from Glasgow, of 800 tons, arrived at Port Said, and proceeded direct for Bombay, the voyage through the Canal having been performed in less than sixteen hours. Upwards of fifty steamers are lading in different ports of Europe which will pass through the Canal."

The second telegram states that the engineers report that the state of the Canal banks presents no perceptible change since the inauguration. The French steamer *Malta* and the English steamer *Rocket*, on her way to Shanghai have passed the Canal. All the captains of vessels have been astonished at the facility with which the passage has been accomplished. The two or three points which at the opening presented some obstacles have been remedied, and the finishing touches have either been already given, or will be very shortly, without impeding the navigation.

At Serapeum, where the Canal was too shallow, it has been deepened to nineteen and a half feet, and there remained only two metres to complete the whole length of the Canal, out of about eighty metres.

To gratify the impatience of the shareholders the names of some of the largest of the vessels that have passed or will pass are published, and are as follows. At the head of these are English vessels:—The *Brazilian*, of 2,815 tons register; the *Queen of the South*, 2,097 tons; the *Mauritius*, 2,150 tons; the *Port Said*, 898 tons; the *Ismailia*, 899 tons; and the *Bolivian*, 2,815 tons. The vessels belonging to the Ocean Steamship Company are to pass regularly through the Canal. Great importance is attached to the tonnage of the vessels that pass through the Canal. For this reason it is that so much prominence is given to the statement that the Captain of the *Jumna*, the tonnage of which is 4,000 tons, had telegraphed to our Government that he could take his vessel through, and received permission to do so. But it need hardly be pointed out that the mere statement of the tonnage may only lead to deception unless it is accompanied with the information of the actual draught of water.

As regards the vessel just mentioned it has not made the passage yet, and is not expected to make the attempt until March or April next. Far in advance of any other nation England has taken, and is preparing to take advantage of the Canal. On this point the *Semaphore*, a Marseilles paper, says:—"Better informed than we are, the English nation, if not more prompt in making its decision, now displays the greatest activity in availing themselves of the advantages offered by the Canal to pass from the Red to the Mediterranean Sea." But it is worthy of mention, continues the official publication, that Russia and Austria are exerting themselves to the utmost to do the same thing. That great company the Austrian Lloyd's is making use of the Canal, and as to Russia, we read in the *Official Journal* of the Empire that delegates from Russia, accompanied by officials from the South and

Northern Railway, have recently departed for Florence, to come to an arrangement with the Company of Upper Italy on the subject of the tariffs for facilitating the commerce between Russia and India. The transport of the merchandise will be through the Suez Canal, and will therefore avoid the great stretch round the Cape of Good Hope. After the business with the director and managers of the railways just mentioned the delegates went on to Leghorn. Further on, the same journal announces again that England is making the most strenuous efforts to lay hold of every advantage the Canal may present to facilitate its communications with the East commercial or otherwise.

[The above remark relating to the draught of water of the vessels passing through the Canal is most important, for this should be given in every case besides tonnage.—ED.]

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## REPORT OF CAPTAIN T. A. B. SPRATT, R.N., C.B., ON PORT SAID.

[THERE is so much important information, not only on the subject of the Suez Canal, but also on the durability of Port Said, being situated *to the Eastward* of the Mouths of the Nile, in the following paper, that we are induced to repeat it from our volume of this work for 1850.]

The effects of the prevailing wind on the coast drift of matter discharged from the Nile's embouchures, is undoubtedly a point of much importance in the consideration of the practicability of maintaining a harbour in Pelusium Bay. And considering that as the prevailing winds, and therefore the prevailing wave movement and currents on the coast of Egypt *are from the N.W. and westward*, the small extension of the shores of the delta to seaward would be accounted for. But to the westward of this river and so near it as Alexandria, the influence would be probably nothing; and that even directly off the coast, its influence would probably be found to extend but for a few miles only.

With this view I commenced an examination of the shore and soundings at different depths off the whole Egyptian coast; and then compared their result with those obtained from the banks of the Nile at different parts, from the shallows of its bed in the middle of the delta, and also from those found at its angle near Cairo; as places affording true indications of the matter which the river annually transports and deposits in the sea.

The recent communications of Mr. Horner published in the Philosophical Transactions (Part II. 1855), have shown that the Nile's deposit, whether the black soil of the upper surface or the grosser matter of sand deposited in its bed and banks, contains a very large proportion of silicious, and but a small portion calcareous matter; the quartzose or silicious particles being from fifty-five to eighty and ninety per cent. and the latter only five or six per cent.

Indeed the whole sand deposited is, I find, quartzose sand, intermixed with some fine mud and particles of mica.

And it is well known that the sands peculiar to the Egyptian desert are also quartzose; and that the upper crests of the hills which embrace the Nile's valley is composed of quartzose rocks and quartzose sand, that must annually contribute this mineral to the Nile in a large amount.

The Nile evidently transports a large quantity of this sand among its deposits: for below the Nile's low water level the bed seems to be almost pure sand in many parts; and even the islets formed by its deposits, and left exposed at low Nile, dry into a palpable sand in many places.

In sinking the tubes for the new railway bridge in course of construction across the Nile at Kafr Zeit, on the Rosetta branch, the matter penetrated through to a depth of thirty feet below the bottom of the river, was found to be almost wholly quartzose sand with but very little mud mixed with it. The mud also which the river transports and deposits over the delta, although black and slimy is by the showing of Mr. Horner's analysis, more than fifty per cent. silicious.

Thus the preponderating mineral or sand which the Nile transports to the sea being identified and capable of being tested by acid, it became evident that the Nile's debris along the coast could be easily traced, and thus the wave movement theory relative to its easterly dispersal might be fully tested.

But as the belt on which Alexandria is situated is rock, extending from Arab Gulf on the west of that town to Aboukir Bay, and might also be silicious, indeed has been represented as identical with the sandstones of the desert, the testing of the nature of these rocks became therefore a point of enquiry previous to testing the sea bottom.

The rocky coast of Alexandria instead of being quartzose like the sandstones of Mount Mokattim over Cairo and of the elevated desert, consists almost of a pure calcareous sandstone, of agglutinated fragments of coral and shells, as found at certain depths off the coast at the present time: consequently a pure sea production of a very recent geological time, apparently post tertiary. Fully ninety-five per cent. of the Alexandrian sandstone was soluble in diluted muriatic acid, and therefore calcareous; whilst the sand deposited by the Nile is insoluble in that acid.

This rock therefore, having no identity with the deposits of the Nile, rendered the defining of the westerly limit of its influence easy. Because the present sea productions being calcareous and identical, the line of demarcation between two such characteristic minerals, silex, or lime, would identify their different sources of origin, viz., whether the matter was silicious and therefore came from the Nile; or whether calcareous, and therefore derived from local or distant coast abrazions and organisms.

After a series of dredges in different depths and at different distances off the coast of Alexandria as far as Aboukir, by testing a portion of each, in all depths under ten or fifteen fathoms, the bottom was found

to be mainly coral or rock incrusted with coral, interspersed with patches of sand formed of their debris.

The littoral zone extends from half to one mile from the coast. Beyond it into twenty fathoms, the bottom consists of the debris of the littoral zone of rock and coral, intermixed with numerous fragments of sea shells, and thus constituting a calcareous sand.

In the next zone between twenty and thirty fathoms it was composed of a white marly sand, resembling chalk, both marl and sand being for the most part calcareous, and five per cent. insoluble matter.

Thus I ascertained that the Nile's deposits not only never reached so far to the westward as Alexandria, but not even so far as the site of Canopus or Aboukir, as a predominating quantity. That this region is wholly within the Nile's influence becomes visibly evident, by the bottom having been entirely changed, from a white calcareous sand and mud like chalk to dark brown silicious mud and sand (the pure Nile deposit), at about four miles N.E. of Aboukir Island, and twelve miles west of the Rosetta mouth. From thence to Rosetta it never changed, except in proportion of sand to mud, or mud to quartzose sand, ascertained by sifting a certain quantity of each dredge. Thus another important element connected with the Suez Canal question was elicited, by finding that a portion of each dredging might be advanced, with the movement upon any harbour or piers constructed transverse to it.

Thus was traced the extent of the Nile's influence along the coast in bringing to the sea, an amount of sand which far exceeded my expectations and experience in respect to other rivers: that of the Danube being a very much less proportion of sand to mud, the former being of the finest quality. The Nile sand on the contrary is much coarser, and forms sandbanks off the coast of quartzose sand nearly as large as mustard seed.

Yet it has been erroneously asserted that the Nile brings but little sand to the sea, to influence the littoral shallows lying off the delta.

To test this point more certainly, several dredges were taken within the mouths of the Rosetta and Damietta branches from five to ten miles above their embouchures, and the following were the results:—

In a dredge taken in seven fathoms near the town of Damietta, the proportion of yellow quartzose and black iron sand to black slimy mud was forty-five per cent. The sand in which being of unequal size explained the origin of the variety of sand which is generally found on the dunes within the sea shore, or on the shallows off the coast and where the action of the wind or wave sweeps and gathers them according to their size and gravity.

But at about four miles below Damietta the dredge, in twenty-eight feet, brought up black slimy mud, in which the proportion of sand to mud was only ten per cent. Also in the Rosetta branch, at about nine miles from the entrance, the bottom contained about twenty per cent. of sand; and, again, at five miles from the embouchure it contained about forty per cent. of silicious sand. The sand found in

this entrance came up in separate lumps, so that one sifting would yield twenty per cent., and another fifty per cent, or more, showing that the mud was probably only a superficial covering. Below this, at two miles from the entrance in three fathoms, the bottom brought up contained only fifteen per cent. of sand, indicating the irregularity of the distribution or mixing at this, its low water season. And the river being this year unusually low and sluggish, it transports comparatively little to the sea at this time, merely such light particles of matter as are easily held in suspension in moving water, and which I found to be only seventeen grains per gallon, with an average current of one mile.* So sluggish indeed, was the Nile at this time, that, if the sea was calm, hardly any discolouration or turbidity was shown, except immediately off the mouths of the river, or on a narrow zone of two or three miles along the coast.

The greatest strength of the current in the Damietta and Rosetta branches did not exceed one and one-third of a mile at the surface; but at the sides of the river and bottom it was insensible. Consequently, as the bed of the river at Damietta and Rosetta is seven fathoms deep, it is much below the sea level. The river water at Rosetta and Damietta was found to be slightly brackish, and it is not in general considered drinkable at low water Nile—that is for about three months of the year.

Thus at dead low Nile it transported comparatively little matter to the sea, being merely such as it holds in suspension, as mud in fine silicious particles, and finding any sand at the time within the mouth of the river under so sluggish a current, indicates the large quantity of sand which the Nile must bring to the sea while flooded.

The quantity of matter brought down to the sea at high Nile is a point that has not, I believe, yet been fully ascertained, but it is estimated to be four times that of the Rhine. Before Cairo at high Nile, 1,046,416,800 cubic yards of water flow per hour, as shown by Mr. Lesseps, III. series, page 19; and from the facts I have here given, it can be inferred that the proportion of sand is much greater than has been generally supposed; particularly, also, when it is remembered that at low Nile, the river is everywhere so encumbered with banks of shifting sand, as to greatly impede the navigation.

The transporting power of the Nile, in respect to the moving sand banks towards the sea, may be judged when it is known that the current is increased to three and four miles an hour at that time; and that it then rises twenty-four feet as an average, and sometimes twenty-seven feet at about fifty miles only above its embouchure. At the Danube it is not half that. The changes also at the bed of the Nile at different seasons are enormous, parts of its channel thirty feet deep having been known to be entirely filled during a season; from whence its scour at that season may be imagined.

* The surface water at Atfeh in October contained sixty-seven grains of mud per gallon, which is just twelve times as much matter flowing per hour (the average current being about three knots), as the surface waters at the embouchures contained at low Nile in the month of May.

The Nile partakes more of the nature of a torrent during its high flood as compared with the more sluggish Danube, the banks of which within the delta are but slightly encroached upon or altered. Whereas the Nile sometimes altogether washes away large masses of its sandy banks, depositing them elsewhere. Thus, at Alfeh, the doors of the magazines and houses that were built when the Mahmudiyeh Canal was opened, are now fully three feet below the level of that embankment, the occasional level of high Nile fluctuating on thus receiving any such surcharge of matter, or by being checked through any increased deposition in its bed.

The large quantity of sand which the Nile contains in the matter it contributes to its delta, is likewise made evident by the coarse nature of the Nile pottery and brick. For it is a well-known fact that the Nile delta, muddy as it is supposed to be, cannot anywhere produce a good quality of brick, being too coarse or sandy. This fact is also a very significant explanation of the quantity of silicious sand which the Nile must bring to the sea during its annual floods, in connection with its proverbially turbid nature at that time.

Another fact which must be kept in view, in considering the effect of the littoral dispersion of the Nile's deposits upon a harbour formed to leeward of it, is that when the Nile is rising or highest, strong N.W. winds prevail for three or four months; so that without this species of monsoon or trade wind of Egypt, the Nile could not be navigated at that season. But the effect of this prevailing wind on the dispersal of its deposits along the coast, is the point to be kept in view, viz., that when the Nile is discharging its largest quantity of matter into the sea, and producing the greatest influence on the prevailing littoral waters, the prevailing winds are also increasing these currents, and producing a greater dispersion of the drifted matter, by the constancy and force of its wave effect along the coast. It will be seen from our dredging, and the examination of the sand dunes on the coast, that there is undoubted movement of the sand in the depths, both along the shore and also within the shores, commencing from the Rosetta mouth and extending to the Damietta; so as to add considerably to the deposits which the latter disperses to the eastward of its embouchure.

Having now seen that the bed of the Nile within its mouth contains a large proportion of sand, let us now see, from the dredges taken in the sea directly off and to the eastward of its mouths, the extent of the Nile's influence in these directions, since it does not reach more than ten or twelve miles to the westward of the Rosetta mouth.

The margin of the Nile's westerly influence is both very defined and very limited; to the eastward it extends as far as the shoals off Kas Burun or Ras el Ghels; and I have no doubt that had my examination continued to El Arish and to the coast of Syria, the same pure Nile mud or its silicious sand would have been found there.

It will be observed by the charts of the Nile's deposit, which charts are the result of the excellent surveys of my friend and coadjutor, Captain Mansell, that at Brulos the sand hills in any size or quantity

first appear. From thence they extend unbroken as far as Damietta, varying only in height from ten to nearly one hundred feet, terminating steeply over the left bank of the Damietta branch, and seem to have caused a bend there by thus encroaching upon it.

This bend is about three miles below Damietta, and from it to the embouchure dunes of blown sand are continuous all along the left bank, partially burying one or two marabouts on that bank. But no sand is seen to accumulate on the eastern bank of the river. There it is constantly cultivated throughout. The western bank, on the contrary, is almost devoid of cultivation for seven or eight miles from its mouth, through the constant re-accumulation and movement of blown sand upon it from the westward; and which consequently wholly falling into the Damietta branch, then again becomes transported to the sea, only to be finally dispersed more to the eastward.

The westerly gales and prevailing N.W. breezes are undoubtedly the main cause of this line of sand dunes from Cape Brulos to Damietta; for as fast as the wind removes the sun-dried sand from the beach, the surf of every gale throws up more.

This was not only evident by an examination of two or three immediate localities, but was confirmed by the natives wherever I landed. At times it completely buries the huts of the coast-guardsmen; and in strong gales from the westward (the quarter described as that whence the sand comes) it is not possible to walk against it. Such is the description of the movement given me by the natives on the coast between Damietta and Rosetta, who also attribute the re-accumulation of the sand to the sea, adding that a general movement of the beach occurs from west to east.

The prominence forming Cape Brulos is a point resulting from the current from the Rosetta mouth, carrying its deposits to a certain distance off the coast, and then the westerly and N.W. wave strike, driving them back again upon it in an oblique direction to the shore.

The sands thus thrown upon it by the surf and accumulated in dunes are perpetually moving before these winds towards the east. Yet the vicinity of these dunes is very fertile, and the system of cultivation is very curious and instructive, in illustrating the perpetual movement of these sand hills; which I found to be composed of a fine silicious sand, and *identical with the sand banks formed within the Nile, and the shallows of the sea off its coast.*

At the high Nile so large a quantity of fresh water flows into the lake of Bulos, that it is perfectly fresh at the Boghaz. The sand hills absorb so much of the fresh water at this time, and during the winter rains, that they retain it sufficiently to enable the Arabs to inhabit and cultivate any flat ground lying between the sand ridges. Palm trees in great abundance consequently flourish on the south side of these dunes or amongst them; and the mere sand lying in the hollows between, without a particle of soil to bind it, produces the finest melons in Egypt. But to prevent each patch of cultivation (which does not often exceed 100 and 200 yards each garden, and seldom so much) from being covered by these moving dunes before the crops are

ripe, the natives endeavour to fix surfaces by staking hedges of dried reeds across them; which hedges act as land groynes against the sea-drift.

Thus the whole of the dunes for the extent of fifteen miles are seen to have their surfaces intersected with these hedges, intended to arrest the blown sand during the season of cultivation. To a certain extent they succeed, causing the sand dunes to become piled up into high and sharp backed ridges. But before the dune is dispersed a part of the garden has been encroached upon and buried, so that the same spot is rarely cultivated for two consecutive years, and if it were not that the loose sand thus retains fresh water, it would not be possible to cultivate the hollows between them.

And yet the best efforts of a population of several thousand Arabs, who inhabit the villages along this strip of land, fail in permanently fixing these dunes. For as the sea continually supplies the sand on the beach, onward it moves in spite of them; and the rate of progress may be imagined when it is known that a mosque near Brulos has in about twelve months been nearly buried in one of the dunes formed, and moved to the westward of it;—a good instance of the prevailing direction of the movement. Another is, that when the inhabitants of any of the villages intend to cultivate a level spot between the sand hills, they immediately construct reed hedges across the dunes to the westward of it. Some of the dunes become so elevated by the repetition of these hedges that they are nearly one hundred feet high, and very steep.

*(To be completed in our next.)*

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## HEROIC CONDUCT ON THE CANADIAN LAKES.

DEAR SIR,—A sailor boy fifty years ago, I am now a constant reader of your valuable Magazine, the numbers of which have so accumulated that they form a goodly pile, and are often referred to by my sailor acquaintances.

Living on the north shore of Lake Ontario, I have an opportunity of seeing the lake in all its stages of calm and fury. At present the lake shore is very picturesque, the southerly gales have driven in the floating ice in a compact mass extending two hundred fathoms from the shore, with large hummocks like small volcanoes, into which the water rushes and throws up large jets of spray through their centre.

The vessels on Lake Ontario are small, generally not more than 150 to 200 tons, schooner rigged, with centre boards to enable them to go into shallow water.

I wish to introduce to your notice a brave young fellow, Mr. Thomas Tinning, who I have known from childhood.

I enclose you a printed statement of some of his fearless exploits, one of which I witnessed, and if you will kindly insert as much of it as you can find space for in your valuable Magazine, it will please the

Canadians. If you can at the same time inform us how we can procure a rocket apparatus, and the cost delivered in Toronto, none will be more grateful to you than, yours, faithfully,

JOHN G. HOWARD, J.P.

Colborne Lodge, High Park, Toronto,
29th December, 1869.

*To the Editor of the Nautical Magazine.*

SIR,—A daring act, especially when performed in the cause of humanity, deserves public commendation, and may be fairly noticed in the public journals. Had I been sooner made acquainted with the following particulars I would at once have brought them under your notice. I trust it is not now too late.

In the tremendous gale of Tuesday night week the schooner *J. G. Beard* went ashore on the south side of the island, a few hundred yards west of the steamer *Monarch*. In this situation she filled, and her crew were compelled to take refuge on the bowsprit end, where they remained till morning, suffering of course severely from the violence of the gale. At an early hour on Wednesday morning, by the aid of a glass, they were seen by Mr. Thomas Tinning, son of Mr. Tinning, owner of the wharf at the foot of York Street. Young Tinning, who is one of the best oarsmen in Canada, immediately pulled across the bay in his shooting skiff, hauled her across the island. and in spite of a tremendous sea then rolling, launched her on the lake with the intention of rescuing the unfortunate sailors who were loudly invoking aid, and some apparently unable to hold on much longer. In this attempt Mr. Tinning was three times upset, and himself and his skiff thrown upon the beach. Though suffering severely from exhaustion and cold he made a fourth effort, and succeeded in getting under the schooner's bowsprit, whence the captain managed to scramble in, and with the end of a hawser they made for the beach, about 150 yards distant.

Mr. Tinning, however, was so exhausted, that the skiff was only hauled ashore by the aid of some of those looking on, who had to rush into the surf for the purpose. The hawser was then made fast to a tree and hove tight, and having procured another and smaller line from the *Monarch*, Mr. Tinning succeeded though with great difficulty, in rescuing all the crew. His attempt to pull through such a sea as was then running, with the few clothes he could keep on, partially coated with ice, and the certainty that any wave that did not actually throw him ashore would carry him out into the lake to certain destruction, was an act of no small daring, and surely merits, not merely the gratitude of those whom he rescued, but the favourable notice of the public. I remain, sir, your obedient servant,

BOB. BOBSTAY.

### *A Schooner ashore at the Humber, Lake Ontario.—Gallant Rescue of the Crew.*

A FEW days ago the captain of the *Pacific*, imagining that the mild weather in the beginning of last week would continue some time,

fitted out his vessel and proceeded to Darlington, to procure a cargo of cordwood. He reached that port in safety, and having loaded the schooner to the top of the bulwarks, set sail for Toronto. He found, however, when he reached the island on Sunday morning, that the bay was covered with ice, and he cast anchor opposite the Humber. Yesterday morning it came on to blow a perfect gale of wind from the east, and the sails and ropes being frozen hard, the schooner and those on board of her were completely at the mercy of the winds and waves. Shortly before noon the schooner parted her cable and commenced to drift towards the shore, and took the ground about one hundred and fifty yards from the beach, opposite Sunnyside Villa. Captain Craw immediately hoisted a signal of distress, as the waves were making a clean breach over the vessel, and the crew were momentarily expecting to be washed overboard. The boat belonging to the schooner, they felt certain, could not live in such a sea, and they preferred clinging to the stranded vessel. Fortunately the signal of distress was observed a few minutes after it was hoisted, by Mr. Howard, architect, and he immediately got into his sleigh and proceeded to the city for assistance. He called on Mr. Thomas Tinning, who, on being informad of the circumstances, hastily got a crew together, and Captain Milloy kindly placed one of the best life-boats of the steamer *Zimmerman* at their disposal. The boat was placed on a sleigh, and the men were conveyed to the scene of the accident by Mr. Howard, who acted throughout in the most praiseworthy manner. About two o'clock they reached Sunnyside, when the life-boat was instantly launched in the surf, manned by Mr. Tinning and three others. With a long pull and a steady one, the waves breaking over the boat every moment, they succeeded in getting alongside of the schooner. With considerable difficulty the crew of the vessel, composed of the captain and three men, were got on board, and her stem turned shorewards. They got into the trough of the sea once or twice and were in imminent danger of being capsized. But the boat was staunch and gallantly withstood the action of the waves. When the boat got into the surf on the beach, the men had all to spring into the water, but fortunately they escaped without any mishap, and the boat was drawn ashore, placed on the sleigh, and the whole party, after receiving some refreshment from Mr. Howard, returned to the city about four o'clock in the afternoon. The greatest praise is due to Mr. Tinning for the coolness and daring with which he acted and handled the little craft amid such great danger. He has been instrumental in saving the lives of a great many persons by the upsetting of boats and otherwise in the Bay. It is feared, as the vessel was labouring heavily when the crew left her, that she will go to pieces. She is owned by Mr. Mark Hutchinson, and the insurance policy on her ran out at the close of navigation.—*Globe, March 4th*, 1862.

### *Testimonial to Mr. Thomas Tinning.*

DURING a violent storm in December last, the schooner *Pacific*, while attempting to run into the Queen's Wharf, was driven ashore in

Humber Bay. The waves made a clean breach over the vessel, and the crew had to take to the rigging. Information was speedily conveyed to Toronto by Mr. Howard, who had observed the imminent peril the men were in. He acquainted Mr. Thomas Tinning with the circumstances, and he procured a life-boat and crew, and in a very short time was at the spot. The life-boat was launched in the surf, and after a severe struggle, the crew of the stranded vessel were landed in safety on the beach. In order to show their respect for such gallant and praiseworthy conduct, a number of citizens proceeded to get up a subscription in order to present a testimonial to Mr. Tinning. A short time ago the committee gave the necessary instructions to Mr. J. E. Ellis, jeweller, King Street, and a very beautiful and appropriate trophy was designed and manufactured by that gentleman. It consisted of a handsome plateau of rock-work in silver, surrounding a representation of water in glass. In the centre is a frosted figure in silver of a Mermaid with hands uplifted, holding a Nautilus shell of frosted cut glass for flowers. The base of the figure is sea-weed and rock-work in silver. In front is a silver shield with frosted border, and having engraved on it the following inscription:

"Presented to Thomas Tinning by a few of his friends and fellow citizens, for his gallant behaviour in rescuing the crew of the schooner *Pacific*, wrecked in Humber Bay, December, 1861: Toronto, May, 1862.'

The testimonial was sent to Mr. Tinning's residence on Monday, accompanied by a note from the committee, to which he made a fitting reply, thanking them for their handsome present.

### *Fearful Gale on the Lake.—A large Schooner in danger—Gallant conduct of a Volunteer Crew.*

On Saturday a fearful gale prevailed on Lake Ontario. The wind blew from the south-west with such tremendous force that it was considered almost impossible for small crafts to live through it; and consequently many anxious looks were cast towards the lake by those residing near the bay, to see whether any vessels had been so unfortunate as to be caught in the storm. Mr. Thomas Tinning, as usual, was on the look-out to see whether his services might not be required in rendering assistance to some shipwrecked crew, and about one o'clock he discovered, with the aid of a telescope, a sail some five or six miles to the westward from the point of the island, apparently labouring hard in the storm. The vessel was soon afterwards headed for Queen's wharf, and ran before the wind very rapidly till she came opposite, and within about two hundred yards of the wharf, when she was unfortunately caught on the bar, lurched and thrown partially on her beam ends. The sails were immediately lowered in order to break the violence of the gale, in hopes that when the storm abated she might be got off with the assistance of a tug. The vessel proved to be the *Rapid*, of Hamilton, bound for that port from Kingston, with iron

for the Great Western railway. Her commander, Capt. Pace, gave orders to have the jolly boat launched in order to bring the cook—a woman—ashore. Although this was no easy task it was finally accomplished. The sea at this time was breaking heavily over the disabled vessel, rendering it almost impossible for any of the crew to remain on deck.

As soon as the accident was observed by Captain Stevenson, of H.M. gunboat *Heron*, he despatched a picked crew to her assistance in the life-boat belonging to the harbour commissioners, but after inspecting the vessel the gallant tars returned to the Queen's wharf and reported the case to be a bad one—in fact it was their opinion that the boat could not be got off. Capt. Stevenson consulted with Mr. Tinning as to the possibility of getting her off, and that gentleman, nothing daunted, expressed his belief that by judicions management she might be got into deep water. He expressed himself ready to make the attempt, and accompanied by Captain Stevenson, started in the life-boat on the perilous trip with the generous object in view of saving the vessel and valuable cargo from utter destruction. The sea was running almost mountains high at this time—the difficulty of reaching the vessel being so great that it took the life-boat nearly half-an-hour to go about two hundred yards. At length, however, by straining every nerve the gallant tars pulled it alongside of the schooner and managed to get on board. The mate and five men, composing the crew of the *Rapid*, were found almost exhausted in their efforts to save the vessel. The Captain had in the meantime gone ashore for the purpose of telegraphing Captain Hardbottle, the owner, at Hamilton, to come to Toronto as soon as possible. Captain Stevenson, however, immediately took command, and at the suggestion of Mr. Tinning, had all sails reset in the hopes that a heavy gust of wind might lift the schooner off the bar. It was ascertained that there were only five feet of water on the bar, while the *Rapid* drew eight, but within a few feet of the bar the water was quite deep enough for safety.

As soon as the sails were hoisted the vessel began to "pay out," upon observing which the crew ran into the bow and by running backward and forward succeeded in keeping her moving; and in a few minutes a sudden gust of wind of tremendous force lighted the schooner completely off and plunged her into deep water. Unfortunately, however, her stern struck the end of the bar heavily as she was going off and rendered her rudder useless. Being so near the wharf, it was found impossible to lower the sails, and having no helm the position of the vessel and her gallant crew was very precarious. The anchors, however, were dropped as quickly as possible, but she dragged them and came up to the wharf with great force. Her bowsprit struck the lighthouse near the end of the western arm of the wharf, and knocked it completely down, the forward gear of the vessel being torn off at the same time. Hawsers were then thrown to the wharf, but the vessel pitched so fearfully as to snap the immense ropes like so many pieces of twine. Under the circumstances it was

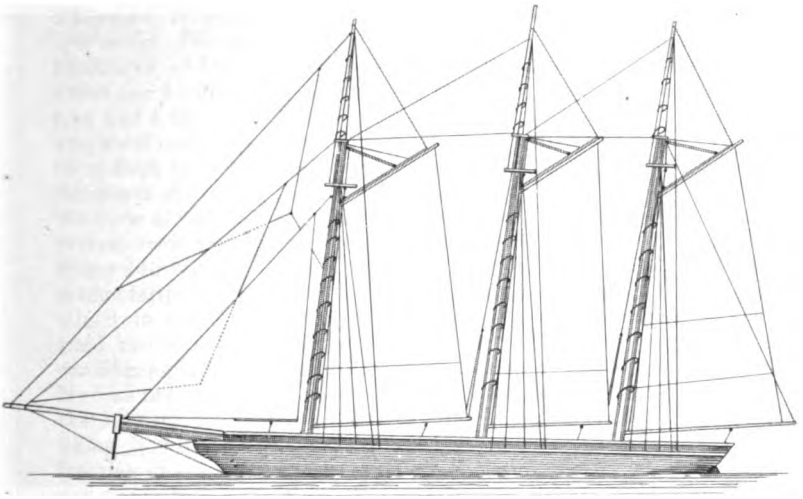
deemed advisable to slip the anchors and allow the *Rapid* to drift past the wharf. The anchor chains were then buoyed up and let go. The schooner then drifted down to the east side of the Northern Railway wharf and ran aground on the lee of the freight shed, where she now lies, and strange to say she is not damaged in the least in the hull. About one hundred dollars will put her into complete repair. There was no insurance. Had the vessel and cargo been lost the owner would have been a heavy loser—perhaps to the amount of ten or twelve thousand dollars. Too much praise cannot be awarded to Captain Stevenson, Mr. Tinning, and the crew of the *Heron*, for their noble and successful efforts in saving the *Rapid*, and none is more ready to admit this than Captain Hardbottle, the owner, who is well-known to the travelling public as the popular commander of the steamer *Passport*.

Captain Pace complains that had it not been for the removal of the buoys at the channel at the Queen's wharf, he would have succeeded in getting into the port in safety, but being almost a stranger in this port, he did not know that the channel was so very narrow, and consequently ran on the reef.—*Leader*, *December* 10*th*, 1866.

### *Schooner Garibaldi.*

THE reporters of *The Telegraph*, in company with Mr. Thomas Tinning, who is ever one of the foremost to volunteer on such occasions, immediately started for the scene of the disaster. When the place was reached at four p.m., the sight presented was truly one of fearful grandeur. The schooner which, since morning had drifted considerably inwards, was now about three hundred yards from land. The tempest tossed billows were breaking over her from stem to stern, and threatening her speedy destruction. Fortunately, however for those on board, the schooner, in changing her position, had settled down firmly mid the rocks, and appeared to be securely wedged into position. Mr. Tinning, with the eye of one accustomed to such perils, carefully examined the coast and pronounced it, considering the near approach of darkness an almost impossible task to launch a boat with any chance of reaching the ship. About six hundred yards to the west is a gravelly beach, from which a small boat may be got off; but in face of the fierce south-westerly gale blowing, it would be impossible to return the same course. The only way of getting back to shore, presuming the schooner was reached, would be by bearing to the east. But here the shore presents an almost perpendicular rocky front, with huge granite boulders rearing their jagged points above the surface of the water. Up to the hour of our leaving, eleven p.m., no attempt was made at rescue, but in the opinion of Mr. Tinning, who all must admit is good authority, after a careful view of the vessel's position and the apparent subsiding of the storm, he pronounced her all safe till morning, and from the signals of those on board, the crew were evidently satisfied that their position was safe till then. As soon as a glimpse of daylight appears, brave men, with cheerful willingness,

No. 1.



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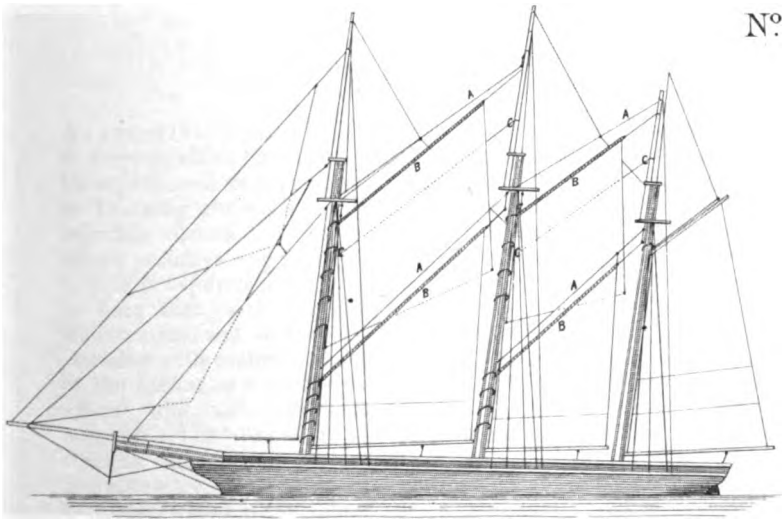


R. B. FORBES'S SCHOONER RIG.

Malby & Sons, lith.

will dare the attempt, and with every prospect of success.—*Daily Telegraph, November 18th*, 1869.

*Further Disaster.*—The ship *Echo of Toronto*, belonging to Mr. McSherry, and loaded with plaster, is beached off the Queen's wharf, about one hundred and fifty yards from the shore. Her crew of two men and a boy were in imminent danger of their lives, as the vessel was continually being swept by heavy seas which threatened to wash them from her deck, while it was feared that owing to the violence of the storm she would go to pieces. The signals of distress put out by the crew attracted a large crowd of people to the wharf. It appeared extremely doubtful, whether any boat could live in such a sea, and succeed in rescuing the unfortunate mariners, whose position became momentarily more precarious. Mr. Thomas Tinning at length determined to make the attempt, and put off from the shore in a skiff amid the greatest excitement on the part of the bystanders, many considering the attempt as certain to eventuate in his own destruction. He was resolved, however, to make the attempt, and pulled through the surging breakers which swept wildly over his frail craft, nearly filling it with water, and threatening to engulf him beneath their foaming crests. After a hard pull, the vessel was reached in safety, and the sailors were taken off and safely brought to shore amidst the clamorous congratulations of the spectators. Mr. Tinning deserves every praise for his heroic conduct.—*Telegraph, November 18th*, 1869.

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## ROGERS' LIFE-SAVING APPARATUS.

A PRELIMINARY trial of the patent projectile anchor invented by Mr. J. B. Rogers, which has been manufactured at Portsmouth dockyard, under his superintendence, by order of the Lords of the Admiralty, took place on Thursday afternoon last, in the presence of many distinguished and scientific visitors. All persons interested in the result of an invention which promises so greatly to render that effectual aid which has been so long a requirement in cases of shipwreck on our coast, will be glad to hear that, with the exception of one or two slight defects in construction, and which can be most easily remedied, the trial was attended with complete success, and has firmly established the value of the anchor as a life saving projectile. We trust soon to hear of its official trial, and, for the sake of humanity, to see it universally adopted. The weight of the projectile anchor, which was thrown from an eight degree mortar with a charge of twelve ounces of fine grain powder, was 134lbs., and with the weight of double line attached to block (which was estimated at 75lbs.) made a total of over 200lbs. The range obtained was 142yds. 2ft.—*Hants Telegraph.*

We have added to the paper of our correspondent a notice of the trial referred to, by the *Mechanics' Magazine*, of Rogers' projectile anchor. And although we have been informed by the Secretary to

our Life-boat Institution, that the projectile is not adapted for use by that Institution, we annex hereto an extract referring to it by the *Mechanics' Magazine*, which says much in its favour, thus :—

*Rogers' Projective Anchor, Block, Rope, and Life-Saving Apparatus.*

We have commented upon this invaluable invention so often in our columns, that our readers must be well-nigh used to it in all its usefulness as a life-saving means, and that allowed to be the most efficient extant, and we trust the meritorious inventor has so far satisfied practical men of its capabilities upon a large scale, that he may soon meet with that reward he so justly deserves. We attended at the Royal United Service Institution on Monday, January the 17th, when Mr. Rogers read a most interesting paper upon his invention, Captain Jasper Selwyn, R.N., in the chair. In the discussion that followed (among whom was Captain Wilson, R.N., a member of the institute, who attended to watch the invention on behalf of Lloyd's Salvage Committee), the full value was borne out, and it was thoroughly allowed by scientific men to be not only the best mode of rendering aid to seamen and ships in distress, but as supplying a want long required.

We have upon former occasions spoken of the prizes that have been awarded to Mr. Rogers by practical boards upon the result of practice with models. We have now to record what he has done with a useful size. The inventor has proved his principle of projective anchor with block and rope line at H.M. dockyard, Portsmouth, by order of the Lords Commissioners of the Admiralty, in such a manner as to remove the doubts of the most sceptical. The weight of anchor, the distance obtained, with the quantity of powder used, seems almost incredible. On Thursday, the 6th inst., he threw an anchor weighing 134lb., with double line (1in.), the weight of which was estimated at 75lb., a distance of 142yds. 2ft., with a charge of twelve ounces of powder, from an eight-inch mortar. There was a very slight defect, which can readily be remedied, viz., the casting at the end of the projectile with brass; this must be iron to meet the first concussion of the powder.

Mr. Howard has now before him the opinions of Rogers' apparatus, and the particulars of that used by our Life-boat Institution, would be afforded him on application (we are informed) to Thomas Gray, Esq., Assistant Secretary, Marine Department, Board of Trade, Whitehall, London.

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## SCHOONERS ON FORBES'S RIG.

OUR last volume was concluded with an account of a proposal by an American gentleman, Mr. R. B. Forbes, of Boston, to make such alterations in the rig and cut of the sails of square rigged ships, as

would produce such a revolution in them that would certainly lead to a reduction of hands; but a revolution so great that even the inventor himself considers would require much time to digest well, before it could be carried out. Doubtless there is economy in it, but of its real efficacy the talismanic word *profit*, must be the main spring that will carry it out. So that the mercantile man is more likely than any other to be him that will ever try it.

We have yet, however, another proposal of the same gentleman, Mr, Forbes, who is busy at home in looking to the rig and sails of the three-masted schooners, and, as is very well known, there is a foible which very much implicates the safety of these vessels; and has received the very judicious attention of Mr. Forbes. Thus the safety of the three masts depends on the forestay, bowsprit, and bobstays.

Let us refer to a letter from Mr. Forbes on this subject. He says in it, "I visited yesterday a vessel of the schooner class. She is 148 feet long on deck, with masts 92, 91, and 90 feet long. The foremast is 29 inches in the partners, the topmast is 55 feet long, and she carries all boom sails, and all hanging on the forestay and bobstays. Any one may readily see from the sketches herewith, that in my rig (No. 2) the sails are more readily managed.

"The gaff topsails of No. 1 are very large, and must be shifted in stays to clear the staysail and the peak halyards, whereas, the same sails in sketch No. 2, take care of themselves by simply attending to the sheets leading to the horn of the cross trees. In No. 1 the booms are 42 feet between the masts and 56 feet the mizen; and the gaffs between the masts are nearly as long as the booms. Now, in order to set the sail flat by the wind and make the gaff topsails draw, the booms have to be hauled nearly fore and aft, while my sails (No. 2) will set well and keep full without impairing their propelling power.

"The schooner to which I allude is sailed by a captain, two mates, four men, and a cook, in all eight men, and is a vessel over 300 tons register. The captain likes my plan amazingly, and says it saves much wear and tear in masts, sails, and rigging, and would be a much safer rig than the old one. But as you have no coasters of the kind that I allude to, I presume the rig would not be worth the trouble of illustrating in your journal. But these schooners are much in use in our seas and on the lakes. Some of them run up to 700 and 800 tons, and as by your plan the masts would be all hanging on the forestay, bowsprit, and bobstays, I can do with less diameter of masts and get more sail, and there will be less reefing, less cost, less danger to spars, and more propelling power. I do not recommend this rig for fancy craft but it does well for steamers and coasters.

"In the sketch No. 2, the letters A, A, mark permanent stays; B, B, travelling stays. In fresh breezes the upper stays B, B, come down on both masts to the broken line C, C, thus easing the topmasts. The lower stays are so far down that they do not bear on the bowsprit and the bobstays as in sketch No. 2, where everything hangs on the foremast, forestay, and bobstays."

Thus much for the few words of a letter, but they are sufficient to

show the advantage of Mr. Forbes's rig. And although we do not employ such schooners as would measure as much as seven or eight hundred tons burthen, yet we do patronize schooners, and could perhaps find them as economical of men and wear and tear as our friends in the United States. And for this reason have we printed Mr. Forbes's letter. And as this gentleman, we find, is meditating a little illustrated work on the subject, we shall have the advantage of consulting it for the benefit of our readers hereafter.—ED.

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## ROYAL NATIONAL LIFE-BOAT INSTITUTION.

A MEETING of this Institution was held on Thursday, 6th January, at its house, John Street, Adelphi, Thomas Chapman, Esq., F.R.S., vice-president, in the chair. There were also present, Sir Edward Perrott, Bart., W. H. Harton, Esq., Admiral Sir W. H. Hall, K.C.B., Colonel Fitzroy Clayton, John Griffith, Esq., Col. Palmer, Capt. Ward, R.N., George Palmer, Esq., and Richard Lewis, Esq.

The minutes of the previous meeting having been read,

The second service clasp of the Institution, and a copy of the vote inscribed on vellum, were ordered to be presented to Mr. Isaac Jarman, the coxswain of the Ramsgate life-boat *Bradford;* and the silver medal and vote on vellum to Charles Fish, the bowman of the boat, in testimony of their recent gallant services during fearful storms in saving life from shipwreck—services which required much skill and nerve in their performance.

The thanks inscribed on vellum were also voted to Mr. Daniel Reading, the master of the Ramsgate harbour steam-tug *Aid*, which usually towed out the life-boat, and which thus materially assisted the boat in its mission of mercy. The life-boat had been out on service nine times during the past month. On one of these occasions she was the means, under very perilous circumstances, of saving three of the crew of the ship *Providence*, of Waisa; and at another period the life-boat, and her consort the *Aid.* rescued from a very dangerous position the ship *Constancia*, of Bremen, and her crew of twenty-six men. The Board of Trade, to whom the Ramsgate harbour belongs, rewarded the crew of the life-boat.

The Society's silver medal and copy of the vote inscribed on vellum were likewise granted to Mr. Richard J. Thomas, coxswain of the New Brighton tubular life-boat, in acknowledgment of his brave services at the wreck of the schooner *Elephant*, of Ulverston, when the boat was the means of saving one out of two of the crew of that vessel, which was wrecked on Taylor's Bank, in Liverpool Bay, during a fresh gale on the 19th October last.

Rewards, amounting to £563, were also granted to the crews of fifty-six other life-boats of the Society for various services during recent heavy storms.

The life-boat *Burton-on-Trent*, at Redcar, rescued the crew of three persons from the sloop *Frances Mary*, of Inverkeithing, on the 2nd December. On the 4th of the same month the Ballywalter life-boat *Admiral Henry Meynell*, saved the crew of five men from the schooner *Brenton*, of Fowey. On the same day the life-boat *Amelia*, stationed at Scarborough, took off five of the crew of the brig *Schiedam*, of Middlesborough. The next day the life-boat *Civil Service*, stationed at Wexford, brought on shore the crew of five men from the *Columbine*, of Wexford,

Two days after, December 7th, the *Kingsgate* life-boat rendered valuable assistance to the distressed steamer *Anglian*, of Dublin. On the 13th the life-boat *Princess of Wales*, stationed at Holyhead, assisted to save the schooner *Merlin*, of Llanelly, and her crew of four men. The Hayle life-boat, *The Isis*, rescued the crew of five persons from the schooner *Vigilant*, of Hayle, on the 22nd; and on the 24th the Lowestoft life-boat *Lætitia*, brought on shore the crew of ten men from the schooner *Agathe Scheilbert*, of Stettin—the life-boat had ten days previously, viz., on the 14th, saved the lives of eight persons from the schooner *Dina*, of London. On the 15th the Porthcawl life-boat *Good Deliverance* went out to the schooner *Loretta*, of Bilboa, and rescued her crew of thirty persons. The *Parsee* life-boat at the Palling station, on the 17th, after several gallant attempts, succeeded in saving two of the crew from the brig *Echo*, of London.

On the 20th the New Quay (Cornwall) life-boat, named *Joshua*, saved the lives of ten persons from the barque *Suez*, of Sulina. The Seaton Carew life-boat, called the *Charlotte*, rescued on the 22nd of December the crew of eight men from the brig *Mary Young*, of West Hartlepool. The same life-boat also went out to the schooner *Daisy*, of Berwick. The *Morgan* life-boat at Rhyl, saved the crew of three men from the schooner *Jessie*, of Liverpool, on the same day; and on the following day the Drogheda life-boat, named the *Old George Irlam of Liverpool*, brought on shore the crew of ten men from the brig *Englishman*, of Workington.

On the 24th the Dover life-boat, named the *Royal Wiltshire*, succeded in saving twelve men from the steamer *M. E. Clarke*, of London; and two days later the No. 2 life-boat at Tynemouth brought on shore four of the crew of the schooner *Viscount Macduff*, of Macduff. The Whitby life-boat, named *Lucy*, saved the lives of six persons on the 27th from the brigantine *Lutha*, of Leith; and on the 30th the Ballycotton life-boat the *St. Clair* saved ten persons from the brig *Edwardino*, of Genoa. The Boys' life-boat, stationed at Caister, went out on the 30th and rescued the crew of nine persons from the brig *Delegate*, of London; and on the same day the Tynemouth life-boat No. 1, the *Constance*, went to the distressed ship *Lady Carter*, of Liverpool, and at the request of the master remained alongside of her for six hours until she got out of danger. The North Sunderland life-boat the *Joseph Austin*, also on the same day went to the assistance of the crews, numbering twelve men, of three fishing cobles, and brought them safely on shore. Again, on this day, the South

Warwickshire life-boat, stationed at Mavagissey, rescued the crew of six men from the brigantine *Girondin*. On the 30th again, making six different services on this day, a distressed barque was assisted to a safe position by the *Mark Lane* life-boat, stationed at Great Yarmouth.

It is right to add that during the past year the life-boats alone of the Institution have saved 873 lives, besides contributing to the rescue of twenty-nine vessels from destruction.

The silver medal of the Institution and a copy of the vote inscribed on vellum were granted to Mr. John Banyard, chief officer of her Majesty's Coastguard at Hornsea, Yorkshire; and £2 to two other men, for putting off in a small boat during a strong gale to the wreck of the brig *Guiseppina*, of Naples, on the 28th October last, with the view of bringing the master of the vessel on shore. The boat had to return in a disabled state, without accomplishing that object; but Mr. Banyard afterwards waded and swam out with his line, and succeeded in saving the captain's life. Mr. Banyard had previously distinguished himself in saving life at the peril of his own.

Various other rewards were likewise granted to the crews of different shoreboats for saving life from wrecks on our coast, and payments to the amount of £2,040 were ordered to be made on various life-boat establishments.

Various liberal contributions to the institution were announced as having been sent from Edinburgh, Glasgow, Bristol, Huntingdon, Campbeltown, Tunbridge Wells, Taunton, Bermuda, Hanley, Lytham, Bradford, Newark, Ramsgate, Wolverhampton, Mark-lane, Cardiff, Fraserburgh, and other places. A legacy amounting to £500 had been received from the executors of the late Jacob Gorfenkle, Esq., of Liverpool, through Mr. Jacob Oliver, ex-mayor of Falmouth, to defray the cost of a new life-boat for Portloe, Cornwall, to be named the *Gorfenkle*. £5 had been received from Mrs. Frederick Bunyer, of the Old Bell Hotel, Holborn, being the amount deposited during the past twelve months in one of the institution's contribution boxes, of which she had kindly undertaken the charge.

The thanks of the institution inscribed on vellum were presented to R. G. Chessman, Esq., and A. Gosset, Esq., late collectors of her Majesty's customs at Weymouth and Bideford, in acknowledgment of their valuable co-operation during the period they each occupied the office of honorary secretary of the branches of the society at those places.

The corporation of Southampton had generously granted permission to the society to place one of its pillar contribution boxes in a conspicuous part of the town.

It was decided to station an additional life-boat at Appledore, on the coast of Devon.

A report was read from Captain D. Robertson, R.N., the assistant inspector of life-boats to the institution, on his recent visits to different life-boat stations.

A cordial vote of thanks was passed to Mr. Thomas Chapman, F.R.S., and Sir Edward Perrott, Bart., for their able conduct in the chair at

the meetings of the institution during the past year; and to its secretary and inspectors, in acknowledgment of the ability and zeal with which they have continued to discharge their important and arduous duties.

The proceedings then closed.

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## THE SUEZ CANAL.—*Directions.*

OUR last number contains the directions of Commander Nares for the Suez Canal. But there are several particulars concerning it in the following which are not to be found in the former. And although we are late we have here not only an interesting account of the Canal itself, but we have also a highly graphic description of the opening, affording some interesting particulars even of an historical kind. We have therefore determined on borrowing it from the columns of *Mitchell's Maritime Register*.

When making the land from seaward at Port Said, the first thing you sight will be a tall granite lighthouse, which can be seen fifteen miles off in clear weather. On the night of the ceremony of opening the Suez Canal it exhibited an electric flash light, and any vessel making for the Port may steer for it until they see the outer pier end, or, if by night, until they get into seven fathoms of water, where they will find good anchorage with the granite lighthouse bearing S.W. by S. about the distance of three miles, or between the two obelisks that mark the entrance of the great Canal, or they should keep the lighthouse in one with the southernmost obelisk. Both these obelisks are inside the harbour of Port Said. They are of wood, painted red, and can be seen at about ten miles distance. It must be remembered that the granite or high light is not on the jetty or pier, but on the westernmost point of land which forms the entrance to Port Said.

For entering the harbour of Port Said steer direct for the end of the westernmost jetty, and you can round it at a distance of about thirty fathoms; and by keeping along it, at a distance of between fifty and twenty-five fathoms, you will carry nearly four fathoms of water, with a hard sandy bottom.

After getting abreast of the end of the longest jetty I commenced sounding, and directly at the very end I found four and three quarter fathoms of water, or about twenty-eight feet. From there we steamed in quite slow, taking about two casts of the lead every minute, or 120 per hour, and the least water I found was a "short" four fathoms, or twenty-three feet three inches. This, the very shoalest part, is just round the inside part of the outer jetty; and the reason it is shoal there is, the drift sand is coming along the beach and drifts round the end of the jetty into still water, where it sinks and settles. The extent

of this sort of bar is only about twelve fathoms wide, and can easily be dredged away.

After passing over this, I found four and four and a half fathoms all the way between tho two jetties, but close up under the longest one, say about twenty-five fathoms from it or less. Having passed the whole of the jetties, I then came to the entrance proper of Port Said, which is very easy of access, still carrying over four fathoms water. It is on this point that the large granite lighthouse stands.

Having passed in between these two points of land, I found myself in one of the most compact harbours in the world. It was no use sounding the harbour; it showed its capabilities in the most evident way.

On the starboard side going in there lay, moored head and stern, and in a line with each other, a row of heavy frigates. On the port side there lay one heavy frigate, the only one moored up and down tbe harbour there; but after passing her, there was a tier of heavy vessels moored with their sterns into the shore, and their anchors down in the middle of the harbour, There was, however, room between each ship for a boat to pass on each side, and they were moored taut to the shore. In this tier, which was on the port side going in, there were about twenty large ships.

On the starboard side, after passing the row of heavy frigates mentioned above, there is an inlet, which forms three sides of a square, where the smaller vessels lie; and just past this inlet there is another port or inlet, or what may more properly be called a bay. This was also full of ships of heavy tonnage. They also were moored with their sterns to the shore, and their anchors down, but they were two tiers deep; and, notwithstanding that there was such a large number of heavy ships in the port or harbour, there was a clear passage up and down the middle from the sea entrance through to the Canal; and the way ships were supplied with Pilots, berthed, and moored, was a great credit to those who managed the affair. In fact, the harbour was order and perfection. You will better understand the amount of tonnage when I describe the ships as follows:—

There was one steamer 3,000 tons register. There were four other steamers over 3,000 tons register, twenty-two steamers over 2,000 tons register, twenty-four over 1,000 tons, and about thirty small craft, such as barques, brigs, schooners, and there was room for fifty more large ships.

At three o'clock in the afternoon the ceremony of opening the Canal commenced, and was over by five o'clock. In the evening the whole of the harbour and town was illuminated, and orders were given that steam should be ready by six o'clock the next morning (17th) to pass through the Canal. Up to this evening there was a great deal of mistrust as to whether a vessel of any size could pass through the Canal. Very many said that it would be a failure. The reports were so conflicting that no one could make up his mind what to believe. Still, the arrangements were going on, and everything was in perfect order at Port Said on the evening of the 16th.

On the morning of the 17th the steam of the vessels intending to pass through was up at seven o'clock, and all were ready to unmoor, and annexed is a table shewing how they passed into the Canal.

The *Delta* had on board three or four directors, as well as the managing director. The Peninsular and Oriental people, up to this moment, seemed to have no faith in the Canal, and appeared only to be waiting for the first intimation of accident to make an excuse to go away again without entering it; therefore I thought I had better look out for another ship, to make sure of getting through.

It was to the courtesy of Mr. Pender, who is connected with the Telegraph Company which is to connect the Red Sea with India, and who is one of the directors of the Telegraph Construction and Maintenance Company, that I was indebted for a passage on board the *Hawk*, which, you will observe, left Port Said as the twenty-third ship to pass through the Canal.

At noon we entered the Canal, and commenced taking soundings on both sides of the steamer. At first we only went at the rate of four miles per hour, as at the commencement there was a curve in the Canal, which was very narrow, and required getting used to. It was not long before we got into the straight part, when we increased our speed to five kuots, and shortly after to six knots per hour: and we kept on at that speed most of the way, taking soundings as we went about three times every minute.

I cannot describe the astonishment and the admiration of every one on board as we steamed further and further into the desert of this great work, and too much cannot be said in favour of the enterprise. Instead of being rough and slovenly, as I expected to find it, I was delighted and struck with wonder at its neatness and finish. The embankments on either side are thrown up with great care, and the slopes gentle and even, so as not to admit of any slips; and after we got into the straight line of Canal it was a truly beautifnl sight. Each ship was three-quarters of a mile in advance of each other, and we could plainly see fifteen ships ahead of us.

As regards the soundings there are twenty-three feet six inches of water along the Canal from Port Said to Ismailia. My information is the result of 2,500 casts of the lead. I saw them myself, and felt them with my own hands. Mr. Hawkshaw and Mr. Bateman, both eminent Engineers, say the Canal is a great success; and, as a Nautical man, I know it is—that is, as far as Ismailia. Between the latter and Suez I know there is seventeen feet, but I am not sure of any more. I have taken sketches of the Canal, and noted down every cast of the lead, which I shall bring home with me. Excuse this rough account. I cannot get a place to write in, nor can I be alone for one moment.

There is one knot of current running all the way from Port Said to Ismailia. It runs towards Port Said, and seems to be permanent. I shall leave this in the *Hawk* for Suez to-morrow (Friday), and shall sound all the way as before. You may rely on all I have said.

*Programme of the Procession at the Opening of the Canal.*

Wednesday, 17th November, 1869.

Time of departure and name and description of vessels:—1. 8.35 a.m. *Aigle*, French Imperial yacht. 2. 8.50 *Graif*, Austrian Imperial yacht. 3. 9.5 Austrian gunboat. 4. 9.17 *Capitano*, Austrian gunboat. 5. 9.21 Prussian Royal yacht. 6. 9.24 Prussian gunboat. 7. 9.35 Netherlands Royal yacht. 8. 9.40 H.M.S. *Psyche*, despatch-boat (Mr. Elliott and Sir A. Milne), followed by two English steam launches. 9. 9.50 Russian frigate. 10. 9.55 *Peluse*, Messageries Imperiales. 11. 9.58 H.M.S. *Rapid*, gunboat, followed by steam launch. 12. 10.5 *Actif*, French gunboat. 13. 10.20 *Vulcan*, Austrian Lloyd's. 14. 10.30 *Forbin*, French corvette. 15. 10.45 *Bruat*, French gunboat (flag of Commodore). 16. 10.55 Cambria yacht, towed by French steam-yacht. 17. 11.0 *Dido*, English passenger ship, Anchor Line. 18. 11.6 *Deerhound*, R.Y.S. steam-yacht, Sir S. Stukely. 19. 11.15 *Zouave* (s). 20. 11.23 H.M.S. *Newport*, surveying ship. 21. 11.35 *Thabor*, French passenger ship. 22. 11.50 *Ptuto*, Austrian Lloyd's. 23. 12.0 *Hawk*, T. C. and M. Company. 24. Russian passenger ship. 25. Russian passenger ship. 26. *Europe*, M.F.P. et F. passenger ship. 27. *Lynx*, R.Y.S. screw yacht. 28. *Principe Oddone*, Italian passenger ship. 29. Austrian gunboat. 30. *Principe Tomasso*, Italian passenger ship. 31. *Principe Amadeo*, Italian passenger ship. 32. *Scilla*, Italian passenger ship. 33. *America*, Austrian Lloyd's. 34. Turkish passenger ship. 35. Turkish passenger ship. 36. Turkish passenger ship.

These are now lying off Ismailia, in the Lake of Timsah, all dressed up. I never saw such a muster of fine ships—from 3,500 tons down to 250. This is a beautiful lake. Ten other ships have arrived.

Nov. 19, 1869.

At eleven this morning this large fleet made a move, and the *Hawk*, which I am still on board of, started as the seventh vessel. The number of vessels now in this Lake (Lake Timsah) is forty-two; their tonnage is from 3,500 down to 250 register, and you may put them down as follows, viz.: four over 2,000 tons, twelve over 1,500 tons, fifteen over 1,000 and the remainder under 1,000 tons. They are, of course, all steamers, and the finest fleet ever mustered together. The weather is very fine, with a cool breeze from the W.N.W. A more delightful day could not be desired, and to look back on the Lake and on the City of Ismailia, only a few months old, with the fleet we have left behind in front of it, is really a grand sight, considering we are in the midst of a desert.

As we are passing up we can see astern of us two vessels are aground, and this may stop the thirty vessels which are behind them. But you must not attribute the fact of their being ashore to the Canal; they are very large vessels, and have been badly handled. There is, however, a 1,500-ton vessel in front of us, going on comfortably. The *Hawk* is over 240 feet long, and we are now going round one of the sharpest

curves and a deep cutting in the sand. We go along very comfortably at about five and a half miles per hour.

There is a curve at the entrance of the Canal from Lake Timsah, and there it was that some of the vessels got on shore. It is now half-past three p.m., and we are steaming through a straight piece of Canal, with pure sand on both sides, and not the least sign of vegetation, and which has been thrown up by the dredgers from the bed of the Canal. It is really a wonderful success. We are now entering the Bitter Lakes, which are opening out before us, looking as smooth as a mirror.

When entering the Bitter Lakes going towards Suez, the land on the other or opposite side is not visible, but it is to be seen all round, and has much the same appearance as the Mediterranean Sea, the water looking beautifully clear. There were six other ships ahead of us, having about three-quarters of a mile between each; and there were several small steamers or steam launches running about in various directions, which made these new lakes look quite alive.

For about a mile after entering the Lakes it has been necessary to dredge a line of deep water, This part is marked by stakes for the day, and has four small lights on each side to mark it by night. At the end of this channel, which is twenty-eight feet deep, there is an iron lighthouse which exhibits a bright fixed light, and which can be seen until the opposite side of the Lake is reached. We just cleared this channel as the sun was setting, and the view was beautiful. We were half-way across the Lakes just as the sun went down. We could see the land all round, and as the red glare of the sun reflected on the dark blue waters of the Lakes, it was a sight well worth seeing. Shortly after the sun had set the pale glare of the moon shone brightly over the waters of the Lakes, which made them look still more beautiful.

By this time the steamers ahead of us commenced to anchor for the night, having got close up to the light on the other side of the Lakes; and as each vessel arrived, she took up her berth a short distance from the one that had anchored just before her, and about seven p.m. the *Hawk* anchored in five fathoms water.

When about half-a-mile from the place where we anchored, we were met by a small steam launch from the *Aigle*, the yacht of the Empress Eugenie. The Empress herself was on board, looking as well as ever, and the pretty steam launch danced over the slightly ruffled water as if it were glad it had the real "Lady of the Lake" on board. Shortly after the *Hawk* anchored, six other steamers also anchored, making in all thirteen on this side of the Lakes.

As I have before mentioned, there must have been a block in the entrance of the Canal from Lake Timsah, or the whole of the fleet would have been with us this evening. That part of the Lakes (as I have before said) which joins Lake Timsah is the worst part for navigating a long steamer, but it will not take long (say a week) to put it all right. There is plenty of water now, the shallowest being twenty-three feet six inches, except at El-Guisr and Serapeum, where it is

said there is but seventeen feet, but that only for a very short distance. Since leaving Lake Timsah, the shoalest water we have found has been twenty-three feet, and that only for a short space. There are twenty-six feet all the way, as a rule.

You may rely on the above statement, as I saw the casts of the lead taken myself; and between Ismailia and this anchorage we took over one thousand casts.

You must remember that only a few months ago these Lakes were dry, and travellers used to cross them on horseback. Now there are five fathoms water right across them, and ships in any number may anchor in any part of them between the lighthouses. Before these Lakes were filled with water there was lying at the bottom of them in many places masses of salt, perhaps eighteen inches thick; and now that the salt water of the Red Sea and the Mediterranean has been let in, the water is nearly twice as salt as that of the latter sea, and it causes the salt to accumulate in the bottoms of boilers much faster, of course.

In my former letter I told you that the Canal is a great success so far as I have seen it, and the character of the part I have gone over to-day leaves the same impression on my mind; therefore you may with safety pronounce it navigable for ships drawing at least twenty feet as far as the Bitter Lakes.

November 20.—At daylight the steam was got up on board of the several ships, and about half-past seven we left the Bitter Lakes for the Canal, having a Suez Pilot on board. The weather is fine, with a cool, fresh breeze—cool enough for an overcoat. The depth of water from the anchorage in the Bitter Lakes to the lighthouse marking the entrance of the Canal is thirty feet, and is very easy of access. The land at the above-mentioned entrance is very low and desert-like for many miles around. The number of vessels entering the Canal now is fifteen. The others of the fleet are just heaving in sight on the other side of the Bitter Lakes. After passing the iron lighthouse which marks this entrance, there is a long row of beacons on each side to define the channel, which is very narrow, although the water is a mile wide; but it is well marked, and there is not the slightest difficulty in finding it, and keeping it as long as way can be kept on the steamer; but with a light ship, and with the wind blowing hard on the quarter, it might be difficult to keep her in the channel. We have not had less than twenty-three feet as yet in the Canal, and, so far as I have seen, a ship may come through drawing that amount of water; but I have said twenty feet for safety. There is no doubt about that draught so far as we have gone.

We are now steaming through the smaller Bitter Lakes, and are carrying from twenty-four to twenty-seven feet of water. We take four casts of the lead every minute. We are now in sight of Mount Gebel Attaker, and only about ten miles from Suez. It is a beautiful day, and the clear, blue water shows out a delicious contrast with the barren sand of the desert, which is visible for many miles around us.

We are now leaving the small Bitter Lakes, and are again entering

the Canal proper, where the sand has been dredged out to the depth of twenty-six feet, and used for embankments. We are now able to go at the rate of seven and a half miles per hour, and the appearance of the surrounding country is a beautiful desert of sand and water, brought into lively relief by a line of steamers of the finest class.

Eleven a.m.—We are now going through a cutting of rock and sandstone, beautifully finished, and plenty of water, our vessel going eight knots per hour, and are within five miles of Suez.

Half-past eleven a.m.—We are still steaming at the rate of eight miles per hour aloug a well-finished Canal, with from 29 feet to 30 feet of water, and there would be no difficulty in going through this part at the rate of ten knots per hour. The current or tide here against us is running at the rate of three miles per hour. We are now getting to the end of the Canal, and I have just heard Mr. Hawkshaw say that it is a grand success. Noon.—We are just in sight of Suez, the Empress's yacht has arrived, and the ships lying there are saluting her.

As we were passing a heap of empty tanks, each about six feet square, I noticed one of them fill by the wave of our steamer and sink into the bed of the Canal. Some day you may hear of a ship getting a hole in her bottom by running up against the corner of one of the tanks, and it may be reported that there is not water enough in the Canal. I mention this as it may be important.

We have now got to the shoalest part of this cutting. The depth has decreased from twenty-nine feet to tweaty-six feet, but the dredgers are here, and will, I have no doubt, deepen it to 30 feet. The water in the Canal has deepened to 30 feet as we are coming into the Red Sea.

As no doubt a good deal of interest is felt as to the character and strength of the banks of the Canal, I may tell you that, on the closest observation, I could discover no signs of anything like a "slip" resulting from the action of steamers' screws and paddles, except in one place, after passing Kantara, and there it was of no moment. The banks are for the most part of hard clay, mixed with the desert sand, and where the banks have shown any symptoms of softness or subsidence they are protected by stonework and piling.

On leaving the Canal the town of Suez is on the starboard side, distance about four miles. We are now through the Canal. M. Lesseps is on shore. We can see ship after ship arriving, and, as far as the eye can reach, there are more ships coming on. It is a proud day, indeed, for M. Lesseps, and he cannot be praised too much. All the arrangements have been perfect.

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A telegram has been received in Liverpool to the effect that the large screw steamer *Leith*, which left London some time ago for Bombay, via the Suez Canal, had safely arrived at Suez, having passed through the Canal, drawing 17½ feet without the slightest difficulty, having met with no obstructions on the passage through. Active preparations are still going on in Liverpool to keep the trade between Liverpool and Bombay, by way of Port Said, going. Already there are three steamers on the loading berths—viz., the *Fire Queen* (ss.), *Port Said* (ss.), and the *Ismailia* (ss.)

# Nautical Notices.

[Communications for the Editor of the *Nautical Magazine* to be addressed to him at 31, Poultry, E.C.]

## Particulars of Lights Recently Established.

(Continued from page 42.)

| Name. | Place. | Position. | F. or R. | Ht. in Ft. | Dist seen Mls | [Remarks, etc. Bearings Magnetic.] |
|---|---|---|---|---|---|---|
| 104. Suez Canal | ... ... ... | ... ... ... | ... | ... | ... | See page 44, last Number. |
| 105. Manukau Harbour | N. Zealand | Buoys | ... | ... | ... | See Notice 105. |
| 106. Tipara reef | Australia | Spencer gu. | ... | ... | ... | Buoy. See Notice 106. |
| Victoria W.pt. | Ditto | Flinders jetty | F. | 24 | 4 | Harbour. *White* and *red* on different bearings. |
| 107. St. George's channel | Buoyage | ... ... ... | ... | ... | ... | Includes Cardigan, Carnarvon, and Holyhead bays, Menai straits, Conway and Dee rivers, Morecombe bay, Solway, and Isle of Man. |
| 1870. | | | | | | |
| 1. Fenar point | Kara-aghaj bay, Roumelia | 46° 56′ 3″ N. 25° 8′ 5″ E. | F. | 72 | 8 | |
| Kavala | ... ... ... | 40° 55′ 2″ N. 24° 25′ 3″ E. | F. | 148 | 8 | |
| Adalia | ... ... ... | 36° 52′ 0″ N. 30° 45′ 5″ E. | F. | 131 | 8 | |
| Tripoli | Syria | 34° 27′ 5′ N. 35° 48′ 2′ E. | F. | 39 | 5 | *Red.* |
| Ramkine Is. | Ditto | ... ... ... | F. | ... | 8 | Altered to a Fixed Light. |
| Baglitzkaia | Azof | Light vessel | ... | ... | ... | Light shown on Mizen mast. |
| 2. Cape Crecia | Sardinia | West Coast | F.fl. | ... | ... | Altered from fixed to a *red* flash every four minutes. |
| Missolonghi | Greece | St. Saviour's | ... | ... | ... | Light re-established Dec. 10th, 1869 |
| Hormiga Grande | Spain | Islet | ... | ... | ... | Light re-established. Date not said. |
| 3. Wolf rock | England | South Coast | R. | 110 | 16 | Est. 1st January, 1870. Alternate *red* and *white* at inter. of 30 sec. |
| 4. White Head | U. States | Maine | ... | ... | ... | Fog whistle sounds 8 sec. every min. |
| Little Gull I. | New York | Long I. snd. | F. | 92 | 15 | Ditto, sounds twice a min. for 5 sec. |
| Lazaretto pt. | Maryland | ... ... ... | ... | ... | ... | On 1st Jan. changed to a *red* light. |
| 5. Loop Head | Ireland | S. W. coast. | R. | ... | ... | On 1st May, the fixed light will be changed to a light lasting 20 sec. followed by an eclipse lasting 4 seconds. |
| Upper Skelligs | ... ... ... | ... ... ... | ... | ... | ... | To be discontinued from 1st of May. |
| 6. Ship Telegraph | Eng. Chanl. | Entrance | ... | ... | ... | Cancelled. |
| 7. Ice bergs in | S. Atlantic | ... ... ... | ... | ... | ... | See Notice 7. |
| 8. Manistee Hr. | L. Michigan | N. America | F. | ... | 12 | On North Pier. |
| Foster I. Nar. | Hf. tide ledge | Beacon | | | | |
| Richibucto Br. | St. Lawrence | Nova Scotia | ... | ... | ... | Silting up. Only 11ft. water. |
| Apple R. light | B of Fundy | ... ... ... | ... | ... | ... | Has been destroyed by fire. |
| 9. St. Thomas harbour | W. Indies | ... ... ... | ... | ... | ... | Caution. Light being of very little service. |
| 10. Telegraph Ship | Eng. Chanl. | Entrance | ... | ... | ... | See Notice 10. |

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

No. 105.—MANUKAU HARBOUR.—The Colonial Government of New Zealand has given notice, that all the buoys connected with Manukau harbour have recently been repaired and moored in their proper positions; the *red* buoys and beacons being on the starboard side, and the *black* buoys on the port side of the channel, going inwards. None but those thoroughly acquainted with the local signals should attempt to cross the bar of Manukau harbour.

No. 106.—BUOY OFF TIPARA REEF.—The buoy, *chequered red and black*, is moored in 4 fathoms, and its approximate position is with the Tipara light vessel bearing S.E. by E. ¼ E. distant one and two-thirds miles. Mariners are cautioned not to approach the reef to a depth less than 7 fathoms, as the ground, to a considerable distance from the reef, is uneven.

No. 7.—ICE BERGS.—Large numbers of ice bergs and detached masses of ice having been fallen in with in the months of September and November, 1869, by vessels homeward bound round Cape Horn; extending in the 42nd meridian of west longitude as far north as the parallel of 42½° south latitude: it is recommended that vessels taking this route should sight, or pass a moderate distance eastward of the Falkland Islands, and should not steer eastward of a N.E. by N. course (true) until northward of the parallel of 40°.

By a reference to the Admiralty Ice chart of the Southern Hemisphere (No. 1241) it will be seen that ice bergs and drift ice have been met with in the months of March and April between the meridians of 20° and 25° west as far north as 40°, and as it appears that exceptionally large quantities of ice are now adrift in the South Atlantic, vessels bound eastward round the Cape of Good Hope are cautioned accordingly.

No. 10.—TELEGRAPH SHIP.—Notice is hereby given, that on or about the 1st day of April, 1870, a Telegraphic Station vessel will be moored by the International Mid-Channel Telegraph Company off the entrance to the English Channel, in from 55 to 59 fathoms water, in latitude 49° 20′ 30″ N., longitude 6° 17′ West of Greenwich. From the Telegraph vessel—Bishop Rock lighthouse will bear N. by E., distant 33 miles. Land's End will bear N.E. ½ E., distant 49 miles. Lizard will bear E. by N. ½ N., distant 56 miles. Ushant lighthouse will bear S. by E. ¾ E., distant 70 miles. The vessel will be painted black, with the words *Telegraph Ship* in white letters on her sides; she will have three masts, and at the top of the mainmast a large black cone will be hoisted during daytime, and a powerful globular light at night, elevated 30 feet above the sea, which in clear weather should be seen from a distance of 6 miles. A flare-up light (? naked) will also be shown every 15 minutes during the night from an hour after sunset to an hour before sunrise. During foggy weather, day or night, a bell will be rung continuously for half a minute every quarter of an hour, and for the first six months, or until the 1st day of October, 1870, a gun will be fired every quarter of an hour, and after that date, every hour.

The Commercial Code of Signals for the use of all Nations, will be used on board, to the exclusion of all other codes, and none other can be noticed.

[*All Bearings are Magnetic. Variation 23 Westerly in* 1870.]

## Review of some Nautical Topics of the Day.

By an Admiralty Notice from the Hydrographic Office, dated 13th January, 1870, see page 106, it appears that the International Mid-Channel Telegraph Company are about to carry out the great experiment of placing a vessel at anchor in fifty-five to fifty-nine fathoms in about the middle of the western entrance of the English channel; a bold experiment truly, but one which on many accounts well deserves success. That a vessel in such a position, and riding in such a depth of water, must be supposed to break adrift occasionally of course has not been ignored by the company, and that the shipkeepers will not always be

"Peaceful slumbering on the ocean,"

may well be supposed: for perhaps a more trying position in which a vessel of any kind might be expected to reveal her uneasiness to the discomfort of her crew could scarcely be found. However, "honour to whom honour," her crew will well earn the reward of their countrymen, and when they may be compelled to run we trust it may be into safety.

The proposal recalls to mind that of the late Mr. Herbert made in these pages long ago; and considering the vessel in the light of a beacon, we are at once reminded of his idea of mid-channel lights, by which a vessel is perhaps less endangered than by having to approach the shore for the purpose of making out a coast light. On this account alone the experiment is evidently most desirable.

But another motive perhaps less patriotic than that of the safety of ships and their people, has of course given rise to the present experiment; and that is at once declared in her title. Well; it should not be on account of her belonging to the International Mid-Channel Telegraph Company that we should not wish her success. On the contrary; that she will succeed in the main object we have no doubt, although there may be on high occasions, a run for life: yet as lookers on, we sincerely hope to hear that the company will realize the profits on which they calculate from their "telegraph." And we have no doubt that more respect will be shown to her in her having a respectful berth from passing vessels than has been accorded to some of our light ships nearer to the coast of these islands.

It is rather amusing that we should find foreign journals better informed than our own on an invention of an officer of the British Navy. On what principle of reticence information is given to one and withheld from the others, it would be difficult to say. But we have seen in a new and promising scientific periodical called *Nature*, some highly laudatory remarks on a maritime invention by Rear-Admiral Inglefield; but the following which we find in the *Mechanics' Magazine* of a later date (January 21st) approaches nearer to a description of it than any other account we have yet seen, and for which our invaluable me-

chanic's periodical appears to be indebted to the *New York Army and Navy Journal!* Important political measures are known frequently to have been given to the world in foreign prints, and no doubt for good reasons, but why such an invention as this should have a similar introduction into the world we would not attempt to explain, as not concerning ourselves. The *Mechanics' Magazine* treats it as follows:

*Rear-Admiral Inglefield's Hydrostatic Steering Apparatus.*

English papers report the successful trial, on the *Achilles*, of the hydrostatic steering apparatus invented by Rear-Admiral Inglefield, C.B. "The Admiral," we are told, "has been more than five years at work upon this invention, and has spent a considerable sum of money striving against obstacles; many naval officers and scientific men doubting the power the Admiral proposed to employ to perform the work, which, as shown on one occasion in the late cruise of the Channel Squadron, could with difficulty be accomplished by fifty men at the helm of the *Agincourt*. The Admiral's steering wheel is almost a miniature affair, placed in the pilot-house on the bridge, and easily moved by one man—indeed, a boy could work it. This wheel acts upon a rod, which, moving up and down through 5in., changes the direction of the action of the water engine, which lies upon the keel of the vessel, and is set in motion by the hydrostatic pressure of the water outside the bottom of the ship. By a well-known law this pressure is greatly increased in power, and is communicated by means of two pipes to two cylinders, arranged as hydraulic presses on either side of the tiller, at a distance of four feet from the rudder head, thus dispensing with the necessity of a fifteen feet tiller, with many fathoms of rope, large steering wheel, and the presence of many men, all exposed to shot in action, but which, after all, in our large ships, are quite unequal to getting the helm over to its fullest angle when going at their utmost speed. The hydrostatic apparatus, on the other hand, has a small wheel for steering on the lower deck in action."—*New York Army and Navy Journal*, of January 8th.

The decided opinion of the Lords Commissioners of the Admiralty respecting the above will be seen in Rear-Admiral Inglefield's letter in our correspondence column.

In our Volume for 1850* (August), we gave an interesting account, from the proceedings of the Royal Society, of a perpetual log, the invention of the Rev. E. Berthon, of Fareham; and we rejoice to see it resuscitated (after so many years of idleness) in the pages of that invaluable periodical the *Mechanics' Magazine*,† from a paper read before the Society of Engineers on the 6th of December last. The subject speaks for itself, and although Her Majesty's ships are content to use the old log-chip of wood, floated in a vertical position, as "sufficient for the common purposes of navigation," (to use a well remembered expression of a respected veteran of former years); yet

* January page 52, and August page 441.
† For January 1870, page 23.

Mr. Berthon's principle of a sustained pressure in a tube by the velocity of a ship sailing is unexceptionably superior, even to the rotating cylinder of Massey, setting aside the old chip, or rough and ready, yet respected, method of our ancestors! It was observed at the time (1850), that Mr. Berthon's machine was better adapted for yachts, in which vessels (as being prone to encourage the delicacies of navigation) it would find a safer lodging, and perhaps more attention than it would obtain in the rough scenes, to which it would be subject in our ships of war. However be that as it may. It is the production of a man of science, and is the only *perfect log* in principle yet invented.

And we shall be right glad to find this fresh effort to bring it into notice producing a good effect, and shall be delighted to find it taken up by our choice pleasure craft as it should be. As to our ships of war we look on it as *too good for them.*

As we are on the subject of our own productions (of which as our readers know we really are not given to any vain-glorying) we are induced to notice an honour conferred on us in that interesting new weekly paper called *Nature:* and we are rather led to making the observation from finding *Nature's* paragraph in the *Hampshire Telegraph*, quoted of course as one of *Nature's* own! We are sorry to spoil the illusion about "Pleasant Island," by telling *Nature* that the information respecting that island quoted by the *Teleyraph* as from *Nature*, was all borrowed without acknowledgment from the first article in our number for January last. Could not the new work have afforded to give authority for information which came to us over many a long mile. We sincerely wish success to the new journal, for we have been from its earliest number, among its admirers. And in proof that we entertain no ill-will to it, we will merely observe that the chart of the North Polar regions, that it contains (in the page or two previous) might be improved with the land discovered north of Behring Strait, an interesting account of which is given in our February number for 1868, by an American whaling Captain. The well-known presence of land in that position is highly important, although there are no signs of it as should appear in a proper representation of *Nature.*

It is said that the following memorandum has been issued by the Admiralty. "Reports having been circulated to the effect that my Lords are about to offer more advantageous terms than those at present given, to gentlemen who may volunteer to retire for the purpose of facilitating re-organisation in the various Admiralty departments, I am desired by their Lordships to state that there ~~is no~~ intention whatever of making such offer, and to draw attention to the fact that the special terms for retirement, sanctioned by the treasury ~~on~~ the 20th of March last, will not remain in force beyond the 20th of March next.—By command of their Lordships (signed) VERNON LUSHINGTON."

The following circular letter has been addressed by the Admiralty to the Commissioners-in-Chief on foreign stations:—"My Lords

Commissioners of the Admiralty having had under their consideration the regulations respecting the mode of paying off Her Majesty's ships on foreign stations, I am commanded by their Lordships to acquaint you that they are of opinion that it would be for the benefit of the men, that only a payment on account of their wages should be made abroad, leaving the bulk of what is due to them to be received, together with their passage pay, after their arrival in England; and, in the case of Marines, after their discharge to head-quarters. My Lords desire that the necessary steps may be taken accordingly.—(Signed) VERNON HARCOURT."

The Lords of the Admiralty have decided to increase the time during which naval cadets will be under training, part of such time being spent in seagoing training ships, and the whole period being considered one of probation; to introduce the system of limited competition for naval cadetships, and still further to reduce the number of naval cadets annually entered. The next examinations for naval cadetships will be held on the third Wednesday in June and on the last Wednesday in November, but the appointments as cadets of the successful candidates will date from the 15th of July or the 15th of January.

WE regret to find that piracy is as rife as ever in the Chinese seas. The following is an extract from an Hongkong letter, dated December 3rd, 1869:—Another shocking piracy has just occurred. The British barque *Crofton* was in a sinking state, having sprung a leak somewhere not far from Macao, and the mate with a boat's crew came in here for assistance. The ship must have been subsequently taken by pirates, who carried the captain and remainder of the crew to the island of Montamba, close by Macao, near the Typa, where they beheaded the prisoners and burnt the bodies on the beach. Information was given at Macao by some fishermen, and investigation set on foot by the Prussian corvette *Medusa*, English gunvessel *Midge*, and Portuguese gunboat *Camoes*. Distinct traces of the tragedy were discovered, with many of the *Crofton's* papers. Several prisoners have been taken, and two or three villages burnt. The *Crofton* herself has not been found—she has probably sunk. Deference to the susceptibilities of the Chinese Government has of late induced the English authorities to restrain the action of English cruisers in Chinese waters, on the understanding that the now rather numerous fleet of Chinese gunboats should be employed in the suppression of piracy. The result is that piracy is rapidly increasing again. The Chinese gunboats are employed in blockading this port and that of Macao, and levying "squeezes" on trade, and within the last few weeks two European ships, the *Apenrade* and *Crofton*, have been captured, and several European lives lost between this and Macao. Besides these piracies, there have been several cases of attacks on Chinese craft. What with the extension of piracy, the increase of import and export duties under the revised treaty, and the growing obstructiveness and insolence of Chinese officials, whose arrogance is in exact proportion to the humility and forbearance of

European Governments, foreigners in these parts find their position daily becoming more and more critical, and look forward to a new war as the only means of relief from their burdens, and the extrication from the very embarrassing position into which a weak and utterly mistaken policy has driven them.

THE *Daily News* has the following regarding our flying squadron :— The "flying squadron" of frigates which has won for Mr. Childers so pleasant a *sobriquet* has not only served as an admirable school of instruction for officers and men ; it has acted as the most popular and powerful of embassies, and has done more, perhaps, to draw the colonies nearer to the mother country, and to convince them that "blood is thicker than water," and that a bit of British bunting makes the whole world kin, more than all the speeches of all the Colonists in Cannon Street. The cruises of the flying squadron have been a succession of enthusiastic welcomes. A British man-of-war is a piece of England itself; and wherever Admiral Hornby's ships have appeared, there the colonists have recognized the real presence of the Empire. At Melbourne this national sentiment seems to have known no bounds. The squadron was received by these energetic Victorians not only with an inexhaustible curiosity, but with a heartiness of affection that could not be satisfied. Not only were the ships thronged with visitors from morning to night; but officers and crews were treated as guests, not only of the Government, but of the whole community, and of every house and home. Picnics, balls, dinners, went for nothing; every "man jack" belonging to the flying squadron was a privileged personage, and to make him happy and do him honour nothing that the most ample, spontaneous, and ingenious hospitality could devise was wanting. From Melbourne the squadron was to proceed to Sydney and Tasmania, and thence to New Zealand. By the creation of the flying squadron the First Lord of the Admiralty, who is himself an old Australian and knows what colonists feel, has proved himself as valuable a coadjutor to his colleague at the Colonial Office as to the Minister of Foreign Affairs.

We perceive by the *Hampshire Telegraph* that, at the inspection of Haslar Hospital on the 6th January, Mr. Childers did an act which will be appreciated not only by the medical officers of the Navy, but by the whole service, and is worthy of being recorded. The Director-General had reported a short time ago to the Admiralty the important services rendered by Mr. Godfrey Goodman during the prevalence of successive outbreaks of yellow fever at Jamaica Hospital, where he had served continuously for nearly seven years, and this officer was accordingly noted for promotion, when he had passed the usual qualifying examination, which he did a few days ago. Mr. Childers at the conclusion of his visit at the hospital had Mr. Goodman presented to him by the Director-General, and in the most complimentary manner promoted him on the spot, in the presence of all the assembled officers, thus affording a prompt and noble recognition of his services.

THE

# NAUTICAL MAGAZINE

AND

# NAVAL CHRONICLE.

MARCH, 1870.

## Life on a Guano Island.

*Its Climate—Guano Storms—Dust-Spouts—The Sea Shells—Arrival of a Chinese Junk—Asing and Akew—A Story of Shipwreck.*

Baker's Island, Pacific Ocean, February, 1869.

Baker's Island is situated on the Equator; but its climate does not correspond in intensity with the popular notions of equatorial heat. Fanned by the continual ocean breezes it is less torrid than many a region far removed from "the burning line."

To one fresh from the rigours and sudden changes of the impetuous climate of America, that of Baker's Island might, indeed, at first seem debilitating; but one fond of warm weather would soon find in the balmy air of this place such vigour, health, and renewal of life as De Soto and his companions voyaged to find in the Floridian fountain of perpetual youth. For, though cold braces, warmth stimulates.

At no time during my stay here has the heat been excessive. Even when the thermometer shows a temperature of 90° Fahrenheit, which is an unfrequent occurrence, one does not feel the heat oppressively; for the immense body of water surrounding the island, and the unceasing breath of the trade-wind, which comes laden with ocean's zest and fragrance, rob it of the arid, parching quality which deserts of the continent possess.*

* Baker Island seems to have been but little noticed, possibly owing to its unimportance in the scale of islands, but from which seclusion from the world its character as a guano island seems to have relieved it. We find no mention of it in Findley's ample collection, nor indeed do we find it laid down in the Admiralty charts; and as its position on the Equator is not even mentioned in the present paper, we are inclined to attribute the omission to the desire of keeping its position yet a secret on account of the guano on it. Our readers will

These trade-winds are the very breath of Heaven. When they move over the waters there is life and vigour. When they die, the spirit sinks. When, however, the sun's rays beat down pitilessly from a cloudless zenith upon the glittering sand, the effect is blinding, and the eye needs protection as much from the reflected as from the direct rays of Heaven. Then both the shore and the sea become dazzling mirrors that torture the sense of sight.

Days occur, however, every two or three weeks, that are notable exceptions to the usually comfortable temperature of this island. At such times the trade-wind dies away, the atmosphere becomes close and oven-like, and the air is motionless, save as the whole firmament quivers with vibrations of heat. But this quiet is not of long duration; for soon a strong wind strikes the island and lifts before it a cloud of guano dust that obscures the light of the sun, and even blots out the island from the sight of the ships at the anchorage. This storm of dust lasts but for a few minutes. It is quickly succeeded by a pouring rain, by which the island is as completely hidden as it was by the dust.

The digging of the guano has to be suspended for a short time after these showers, which drench the surface so completely that the agents,

remember Ichaboe on the African coast that was for some time in the same condition. However, we believe it would be found not very far from the Meridian of the Sandwich Islands. But we may probably hereafter have an opportunity of clearing up the question of its longitude, for our own pages contain much matter of this kind, especially our Volume for 1862.

A few years ago (about 1859) some severe gales to which it was exposed effected the complete destruction of the shear wharf, erected for the purpose of shipping guano over the surf. This wharf was about 400 feet in length and put up with a great deal of labour. The first injury to it was caused by the hull of the wrecked ship *Virginia* being washed against it in a storm. This carried away five pairs of shears, which, however, were soon replaced and the wharf put in working order. A few days later, a tremendous surf rolled in from the westward, which completely demolished the whole structure. This surf is supposed to have been created by the S.W. monsoons, which blow with terrific fury in the China Seas. Eye-witnesses describe it as exceeding anything of the kind ever seen at these islands in our heaviest storms. The surf rolls in from the sea, sometimes an unbroken column, twenty to twenty-five feet high, and a quarter of a mile long, threatening at times to deluge the island, and affording one of the grandest sights imaginable. And this occurs without any strong wind, or perhaps the wind from the contrary direction. Of course no fabric, though built of solid masonry, could withstand such a tremendous power, and the probability is that the shipping of guano will have to be done by the slow mode of beaching the whaleboats, whenever a quiet sea permits it, for no boats could ever ride through such surfs as we have described.

It appears that the guano obtained from the Equatorial Pacific Islands is thought highly of in this country, but there is a purpose to which it is applied that we have only just learnt, which is that it is extensively used in the manufacture of lucifer matches. The phosphoric acid is extracted from the guano to be converted into phosphorus, to form the composition with which the matches are tipped.

It is stated that the supply of guano at the Chinchas will be expended in about two years, and that the Peruvian Government has ordered the guano companies to export hereafter from the Guano Islands on the northern coast.—ED.

attentive to their employers' interests, decline to receive it, owing to its undue gain in weight. But evaporation is rapid, and a few hours suffice to restore the guano to its dry, pulverulent condition.

The amount of rain that falls during these short storms is considerable, and, were it possible to collect it in a pure condition, it would amply supply the island with fresh water. But the *guano-storm* that precedes the rain causes the water which runs from the roofs to be utterly unfit for drinking purposes.

There is one phenomenon, that of dust-spouts, worthy of mention which I have noticed several times since my arrival upon this island. About noon on days when the usual trade-wind dies away, and a draught of cool air sets in from the ocean toward the centre of the heated island, a gentle whirlwind is produced that sweeps together the guano dust into the form of a column, which ascends higher and higher until it mingles with the clouds. These dust-spouts continue their gyrations until an uprising breeze disturbs the equipoise of the nicely-balanced aerial forces, and the stately column breaks up and vanishes in pulverulent clouds.

In point of sea shells Baker's Island is a rich field for the conchologist. Its reefs are stacked with shells of rare beauty, and each tide washes up great numbers of them upon the sand-beach. Join me in a walk around this island. The tide is out and the reef is now quite bare, making this a favourable hour for us to start. O-pu-nu-i, my Kanaka friend, my man Friday, carries a guano bag in which to bring back the spoils of our adventure. Having made the descent of the sandy bank at the front of the house, we are at the edge of the water. Let us wade in. The water is not more than knee deep. Do not take your shoes off. Your feet are worth more than shoes, and will need their protection against the spines of the "*Sea-urchins*" (Echini), which are long and sharp, and would pierce your feet were you to step on them. I have seen a Kanaka's foot transfixed by one of these needles while wading on this same reef. I watched the fellow for symptoms of tetanus, but luckily he did well. Look well to your steps. The green moss that covers the reef makes the footing very slippery. The reef is gullied, too, by the action of the water, as a mountain side is worn into deep valleys by the rains. Thirty feet from you the ravenous sharks are swimming in the deep water outside the reef. At high tide they come over the reef on which we are now wading. See them as they turn upon their sides and expose their white bellies to the sun, as they snap at the floating body of fish.

As we pass round to the north of the island the water becomes shallower, and the sandy beach stretches out over the reef.

O-pu-nu-i turns over a moss covered stone, partly embedded in the sand. and out darts a grey eel, half reptile and half fish. I put my foot on it to imprison it; but it slips out from under it as if it were a spirit, and wriggles like a snake into the nearest pool, where it is lost.

The under side of the stone is studded with shells of chrome yellow colour. Out of a dozen which you scrape together you select three or four that are fully grown, whose colour is the deepest.

This beautiful shell *(cypræa moneta)* is called the "cowry." It abounds in the Indian Ocean, and is used by the Mosambique negroes of the east coast of Africa as a sort of wampum.

Here, also, we find a still rarer shell of the genius *Cypræa*, which is popularly termed the "Argos eye," from the great number of round white spots, looking like eyes, that cover it.

This single genius of shells *(Cypræa)* is represented by no less than twelve or fifteen species that are found about this island.

Here lie the bleached shells of mammoth bivalves, more than two feet in length *(Chama gagas)*, whose scolloped jaws when clamped together by the living animal within, would require the force of a crowbar and the skill of a New York burglar to open. Their interior glistens with pearl, making a couch fit for Aphrodite herself. Doubtless it was in such a cradle as this shell that Venus rose refulgent from the seas.

Between these rocks we see the cast-off armour of a race of immense crabs with claws as large as sheep shears. This is the same species that flourishes at Fanning's Island. Of these crabs it is related, perhaps in Baron Munchausen's vein, that they make excursions inland, and, like Professor Agassiz's climbing fish of Brazil, ascend the tall stems of the cocoanut palm trees, to devour the young and tender fruit, of which they are very fond.

But it would need a *savant* to tell the names of one-half the dead relics of marine productions, lying stranded about us, through which our feet crunch remorsely at every step.

By the arrival of a Chinese junk since my last writing, the monotony of this exile life has been most unexpectedly broken in upon. Last Sunday morning O-pu-uu-i waked me, and in great excitement told me there was a "*moku ano e*," a "queer ship," to the windward of the island. I ran out on the verandah of the house, and there, true enough, was a nondescript and strange-looking craft. My first thought was that it was a Malay proa; but its peculiar hull soon proved it to be a different craft. Another look, and I saw it must be a Chinese junk. It was evidently in distress, and not under the control of its crew. A tattered yellow flag fluttered at the mast-head, and the vessel with a mere patch of sail, was drifting unmanageable towards the reef.

Directing my man to run up our American colours, I hastily dressed, and we rapidly walked to that point of the coast for which the junk was making. I could see but one man on board. He seemed to be doing his best to bring the vessel to, so as to sheer off to the leeward of the island. But a current was running in such a direction as to make this impossible; and the clumsy craft, owing to his mismanagement, was taking a course between wind and tide that was fast carrying it toward a reef of surf-beaten rocks, where no exertions of ours could have prevented the vessel from being broken to pieces, or saved its people from a wretched death by the sharks or by drowning.

I beckoned to the steersman to put his helm "hard-aport," and he evidently understood me, for in a moment, the course of the junk was changed, and, grazing clear of the rocky point, she found entrance

into a narrow cove in the reef. I motioned to the man aboard to throw me a line. He attempted it, but, owing to his weakness, it fell short.

Luckily, O-pu-nu-i had the forethought to bring one with him, and one end of this was flung aboard the craft, where the Chinaman made it fast. Directing O-pu-nu-i to remain ashore, I succeeded, by means of this line, half-swimming and half-pulling myself through the sea, in getting aboard. As I climbed on to the deck, the Chinaman prostrated himself toward me on his hands and knees, touching his forehead to the deck, and at the same time muttering as if in prayer.

I tried to make him understand, by gestures and encouraging tones of my voice, that he had nothing to fear from me; but he still maintained his prone position. Somewhat nonplussed in the effort to communicate with the stranger, I stood for a moment contemplating him in silence. But happening to call to mind a Chinese salutation which I had learned years before, I advanced toward him, extending my open hands in welcome, and at the same time uttered the talismanic greeting, "Chin-chin!" The effect was magical; he raised himself upon his knees, and I saw expressed in his countenance a feeling of thankfulness and assurance, which was not conveyed to my understanding by his words. His confidence being won, he gave me his name as Asing. Another man named Akew, was lying almost helpless in the cabin. They two were the only persons aboard.

The vessel is a Chinese junk, about fifty feet long, flat-bottomed, and high in the stern and bow, and ill-adapted to beating against the wind. It has a single mast, unsupported by shrouds, which is situated considerably forward of the middle of the vessel. A rude spar, run out from the larboard bow, serves as a bowsprit. On the starboard bow is painted an eye. When asked the use of this, they always say, "He have no eye, he no can see."

The vessel carries but two sails—a large square-shaped mainsail, and a triangular sail like a jib. The mainsail is made of matting and is strengthened by bamboo splints, that are thrust through it at intervals of about a foot. This is an immensely heavy sail, and it must have tried the ingenuity as well as the strength of Asing to handle it.

The steering apparatus is clumsily constructed. An unwieldly tiller, nine feet long, sweeps across the after deck and controls a ponderous rudder. The binnacle is a rough box of teak wood, and is situated so that the man at the helm cannot look into it more than a third of the time. The compass is so rudely made that it would be difficult to tell within two or three points the course of the vessel.

The condition of the two men on this vessel was quite distressful. Akew was down with the scurvy, and for nearly a month has been able to render only small assistance to his companion.

From Akew, who can talk some broken English, I have obtained the following story: The vessel was engaged in the fishing business, and while carrying a cargo of bèche de mer, edible birds' nests and salt fish from the Loo Choo Islands to Shanghae, was driven off its course by a violent storm into seas entirely unknown to them, where

they drifted at the mercy of the winds and waves. For ten moons they were borne they knew not whither.

Their casks of water were sufficient for only a voyage of three or four weeks, and were soon empty. But from time to time, they managed to catch a scanty supply of rainwater; and as they had a few cocoa-nuts, and a large supply of rice, in addition to their cargo, they were not at any time absolutely destitute of food. Their firewood, however, gave out soon after leaving port, and in a few months the hardships and privations incident to a long voyage, and their insufficient and uncooked food told seriously on the health of all.

Disease came among them, and out of a crew of nine, including the Captain, all died but these two. After this the command of the vessel devolved upon the supercargo, Asing.

At three different times they saw vessels passing in the distance, twice during the night, and, in one case, they were so near to a large clipper that they distinctly heard the ringing of the ship's bell.

The instances of vessels from Chinese waters being driven to islands in the Northern or Central Pacific Ocean, of which the adventurous voyagings of this junk are an example, are not so rare but they should be taken into the account in deciding the probable source of population of those islands.

O-pu-nu-i says, "it is plain now whence the Hawaiians derived their origin." But the solution of this problem will depend upon the researches of the philologists. We are now anxiously awaiting the arrival of a ship; I to gain fresh news from the world, and to send this letter; my Chinese guests to find a means of escape from this desert spot, with their bags of Spanish dollars.

[Of the resources of this island as a guano store we have no information, but consider them as tolerably extensive, more so indeed than Ichabo. A vessel driven to the Sandwich Islands last summer had 1,425 tons on board. It is said that the *Mattie Banks* was totally wrecked there on the 26th of May.

Since concluding our remarks we have found it in our Volume for 1868, August number, placing it about S.W. (true) of Owhyhee, in which position we find it under the name of Phœbe or New Nantucket.—Ed.]

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## Ebn Hana and the island Ruad, *Coast of Syria.*

[A stream of fresh water rising from ground that is twenty-four feet below the sea level, and penetrating through that depth of salt water so as to appear in jets of continuous flow above its surface, is a phenomenon of so rare a nature, that we are inclined to reproduce it from our volume of 1859. It is moreover situated in a part of the world celebrated in ancient classic history; and as it may possibly become the resort of civilization, this has been another inducement to bring it

forward. The account of it rests on the authority of a naval officer, now retired from the arduous service on which he was employed; who can look back on his labours with the satisfaction of having contributed his share to the critical knowledge of the Coast of Syria, on which it is situated, in the construction of the chart that is required by the seaman, and published by the Admiralty.—ED.]

Leaving the anchorage under Cape Posidium on the 25th of June, we sounded towards Latakia; but finding that roadstead very exposed, we sought shelter to the north of Cape Khanziro, where we found excellent anchorage in the bight off the small village and monastery of Ebn-hana.

This I made our head quarters whilst Lieutenant Brooker completed the coast line and survey towards Latakia. Mr. Gray, during our stay, made a survey of the anchorage on a larger scale than the general sheet.

Here the packets running between Alexandria and Smyrna would find excellent shelter and smooth water during the strong S.W. breezes, and could always land their mails, which could be conveyed by horses in one hour to Latakia: whereas now they frequently cannot communicate with Latakia, and are forced to run on to Alexandretta.

Here we remained till July 5th; when having completed the soundings in the vicinity, I pushed on for the island of Ruad, leaving Lieut. Brooker in the first whaler to run in the coast-line. We anchored immediately to the eastward of the island in seven fathoms, sand.

Ruad, although but four-tenths of a mile in length, affords excellent shelter. During our stay it blew very hard from the S.W. on two or three occasions. But we lay perfectly smooth and quiet, and for a vessel of our size it is the most agreeable anchorage along the coast.

The island, a mere rock scarcely 100 feet high, without a spring of fresh water, contains upwards of 1500 inhabitants, whose principal occupation is trading along the coast in small schooners, and in sponge diving. Their only water is what is collected in the winter and rainy season, and preserved in immense tanks. Every necessary of life has to be brought from the main land.

The island which has been extensively quarried is composed of a red sandstone. Two moles, formed of enormous stones, have been thrown out on the eastern side. These with the S.E. capes form two well sheltered coves, capable of holding all their small craft. The larger vessels ride out the winter, anchored about a cable to the eastward.

An ancient wall, composed of blocks of sandstone, many measuring fifteen feet long, seven feet broad, and as many high, surrounding the island to prevent the encroachment of the sea, as well as for protection, still exists, but much has been thrown down during heavy gales, those in 1840 were particularly destructive. To the north and west the wall was double; the two being fifty feet apart. A large fort now dismantled and fast falling to decay, crowns the centre or highest part of the island; and a smaller one at the head of the centre mole.

These were built about forty years ago to protect them from the attacks of the Greek corsairs.

The population is formed principally of Mahometans.

Between Ruad and the Main are three fresh water springs, bubbling up in the sea in four fathoms water. During calm weather the water is thrown up in jets above the sea surface. These are in all probability, the springs mentioned by Strabo, from which the inhabitants during time of war drew their supplies, "by letting down from a boat, which served for the purpose, and inverting over the spring (at the bottom of the sea) a wide mouthed funnel of lead, the end of which was contracted to a moderate sized opening; round this was fastened a long leathern pipe, which we may call the neck, and which received the water forced up from the spring through the funnel."

Opposite on the main land are the extensive ruins of Antaridus, so well described by Pococke and Maundrell.—*Extract of a Letter from an Officer.*

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## THE SAME AURORA SEEN IN THE NORTH AND THE SOUTH.

*To the Editor of the Nautical Magazine.*

Mr. EDITOR,—It is not common to find a display of the Aurora seen simultaneously in the northern and southern hemispheres. But that of May last, described in the monthly notice of the Astronomical Society for that month as one of "surpassing magnitude," and seen in the north of England, appears to be the same as that seen from the Peninsular and Oriental Company's steamer *Avoca*. The annexed letter describing it also appears in the Sydney *Morning Herald* of the 6th of August, and the letters from the *Times* are added for its description as seen in England. It is besides somewhat new to me to find the steamer's compasses to have been affected by it on the Australian coast.

"*To the Editor of the Herald.*

"SIR,—The publication of the following may subserve the cause of science. The memoranda are taken from my note book, and were written on the days on which they respectively bear date. The letters are from the *Times* of the 15th of May last.

"'May 14, 1869.—A little before dawn and up to day-break this morning the Aurora Australis was beautifully visible. Its coruscations rose brilliantly from the horizon towards the zenith. It will be interesting to observe whether any magnetic derangements have been associated with it here or elsewhere.'

"'May 15, 1869.—I this evening asked Captain Farquhar, R.N., commander of the Peninsular and Oriental Company's R.M.S. *Avoca*, which arrived last night with the English mails, whether any appearance of the Aurora Australis had been witnessed from his ship the preceding night. He told me that about five o'clock in the morning,

just before the day began to break, his attention was called to a strange appearance on the southern horizon. It seemed at first as if several vessels were on fire in succession at regular intervals. From these columns of red light, interspersed with brilliant coruscations all shooting upwards, arose distending as they advanced in height, until they faded away at an elevation of some thirty degrees. I asked him whether his compasses had been at all affected. He said they all were, even one which he called his regulating compass; the consequence of which was that he went several miles to sea out of his course. He added that if the deviation had been in the other direction, he might have got into difficulty.'

"A very fine display of the Aurora in this colony in 1858-9 was subsequently found to have been simultaneous, or nearly simultaneous, with a similar phenomenon in the northern hemisphere. On that occasion the magnetic disturbances were very great, not only in Australia but throughout Europe and America.

"I am, Sir, faithfully yours,

"August 7. "T. A. MURRAY."

The following letters from the *Times* are added for its description as seen in England. I am, etc.,

NEPTUNE.

"AURORA BOREALIS.

"SIR,—I have to record a most magnificent display of Aurora Borealis last evening, which was exceedingly brilliant from 10.40 till 11 o'clock, so much as to be light enough to read large print by. In the west and also in the north-east were masses of orange and red light. A low arch spanned the northern horizon, from which streamers rose in all directions, and, passing through the zenith, converged to a spot in the heavens midway between $\epsilon$ and $\delta$ Bootis; N.P.D. 59 degrees. The cupola was very changeable in form; colourless, thin, and cirrous-like. At times it had a winged appearance, at others an open space around which all the streams converged, but more frequently it was a thickened mass of light, from the streamers crossing each other. The streamers very sensibly dimmed the stars.

"When the phenomenon was at the brightest, coruscations extended within 28 degrees of the south horizon; before this the sky was cloudless, but suddenly a dark cloud-like mass was formed in S.E., from which coruscations extended; on these streams ceasing the cloud-like appearance almost immediately vanished. At 10.56 p.m. a dense colourless coruscation passed over the cupola, having at this spot an indent on the edge of the streamer of about the shape and apparent size of half a moon.

"The coloured lights were marked features, especially those which were sea-green and orange. At 11h. 50m., still strong red glare in N., and faint streamers beyond the zenith. At midnight no streamers. At 12h. 20m. (14th) cloudy, brisk N.N.E. breeze, faint glare; 1h. 15m. a.m. till 2h. 10m. a.m. a strong red glare seen through clouds.

"I am, Sir, your obedient servant,

"Highfield-house Observatory, May 14. "E. J. LOWE."

"SIR,—A magnificent display of the Aurora Borealis was visible here yesterday evening between 10 and 11 o'clock. A broad gleam of a faint blueish green colour, resembling the light above the horizon before the rising of the full moon, was observed, extending from the N.W. to N.E. From this central body strong rays of light shot upwards beyond the zenith, varying in intensity, and continually changing from a pale primrose colour to a deep crimson and returning again to its former tint. The night was clear, and the stars shone brightly through the streamers. The rays were frequently observed to shoot downwards from the zenith to the horizon, and were sometimes very numerous and brilliant, presenting the appearance of the interior of a large dome. I am, Sir, your obedient servant,

"CHARLES P. RUSSELL,
"Assistant Secretary of the Bath Royal
"May 14. Literary and Scientific Institution."

"METEOROLOGY.

"SIR,—It may interest many of your readers to know that from three to five yesterday afternoon very strong intermittent earth currents were observed on all long telegraph circuits in the south of England, and most probably all over Europe. The barometer at nine was very high, 30·47 in. Some three weeks ago an exactly similar phenomenon occurred. The Aurora Borealis was visible at night, and in twenty-four hours a change of wind occurred and warm weather set in. It will be interesting to watch if the same happens now. The sunset last night was most remarkable in this locality. I am, etc.,

"W. H. PREECE,
"Telegraph Department, L. and S. W. Railway,
"May 14. Southampton."

[Some good remarks on this subject will be found in our volume for 1867.—ED.]

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## DESCRIPTION OF THE STRAIT OF SAN BERNARDINO, PHILIPPINE ISLANDS.

*(Concluded from page 76.)*

### NAVIGATION OF THE STRAIT OF SAN BERNARDINO.

*Anchorage at San Jacinto.*—Passing through the strait of San Bernardino from west to east, if in the season of collas or S.W. monsoon and the breeze is fresh, there is nothing to be careful about; but should it be otherwise, it would be well to anchor in Port San Jacinto, or on the bank off isle Ticao at its northern part. A vessel may then complete her wood and water and wait until a colla or south-wester sets in, without waiting for it to become strong: and it would be

advisable to send a boat a mile or two to the eastward to run for as a mark if the wind should be favourable to pass the eastern entrance. In this case the vessel should make sail, taking care that the tide admits passing at a sufficient distance from Luzon, Capul, etc., as directed in the section on tides.

Should a vessel be in the vicinity of the Calantes and wanting wind, she might get over to the south side of Luzon where she will find good anchorage: but if she cannot reach this, and the currents are setting her towards the rock, she should anchor on its banks before getting too near to the islet: she may wait there until the strength of the current is expended, and then proceed according to circumstances, keeping in mind the description of the strait and the notices about currents.

*Requirements for passing through the strait in the contrary monsoon.*—To pass the strait against the monsoon it is necessary to be well prepared with anchors and cables, and to pay the most careful attention to working the ship. For the difficulty is to anchor as soon as the favourable tide has done, and to make sail as it commences. If this were carefully done with foresight at all times of the year, the strait would be passed from east to west without much loss of time.

*Entering the strait from the eastward in the time of the colla.*—Coming from east to west while the colla or south-wester is blowing, the tide must be carefully watched in the entrance, so as to keep the vessel in its strength extending or shortening her boards as necessary, so that before the ebb begins the vessel may have reached as far as the shoal which is to the north-west and west of Viry island or Balicuatro, where the anchoring ground being sand it would be convenient for a vessel to wait. She would remain here until the current is observed to become weak to the eastward, and she may then prepare for starting, and work with the same precautions with the ebb taking her way through the channel between isle Capul and Dalumpiry, or that which is formed by this island and Samar.

*Anchorage in the bay of Tinaguintman.*—If the current of tide should begin to fail before the vessel can enter any of the channels, she should near the island of Samar, and find anchorage in the bay of Tinaguintman, which is about N.E. by N. of the northernmost headland of isle Dalumpiry, hugging the shore she will find anchorage there as described in the hydrography of the strait. Continuing as before, with another flood tide, she will anchor when necessary in one of the channels about isle Dalumpiry where a sandy bottom will be found interspersed with rocky patches.

*On anchoring.*—Whenever it may be desirable to anchor, so as if possible to avoid losing an anchor, or the great delay occasioned by recovering it after use, it would be as well as the current of tide becomes weaker, to use a stream or kedge, keeping the bower anchor fast, so that besides not losing the valuable time of tide, it may be laid out readily in different directions for extricating the vessel from troublesome ground, where she may have anchored, the stream or kedge being easily lifted, assisted by the buoy rope and sails, if necessary.

With the flood she will get soon to a part where she has more room for working in, but this must be done with the precautions already pointed out in our description of the hydrography of the strait, and on the mode of profiting by the streams of tide favourable, and avoiding those that are unfavourable. Having reached the Diamond shoal, she will choose her route according to the direction of the wind and state of the tide. The vessel may either pass between Naranjos and the isle of Capul, or between this group and the detached one, which is the best, and afterwards anchoring on the coast of Bula or on the eastern side of Ticao: or she may continue her route for Sorsogon, or to gain the north point of Masbata.

Having gained thus far the vessel has reached a part where she may work readily and she will not be long in gaining the mouth of the channel between Luzon and Mindoro. But here too it will be necessary to exercise as much caution as at the other entrance of the strait. From what has been said of the tides and the hydrographic description, the best places for anchoring with the ebb will readily suggest themselves, and it is only necessary to observe that as it is not every vessel of even good qualifications that can clear the distance she has to go in one tide, as far as the isle of Maricaban, when she cannot make the Bay of Abra de Ilo, she might anchor in the mouth of the port Galera, taking care that at this time strong gusts of wind will be had from N.W., that expose vessels, on account of the great depth in this channel, to the necessity of getting very near the coast. It should also not be forgotten that here the flood begins somewhat sooner in the middle of the channel, and the current is very strong. From this place one ebb tide suffices to take the vessel to point Santiago.

*To pass through the Strait from the westward in the N.E. Monsoon.*—To traverse the strait from west to east in the N.E. monsoon a vessel must proceed in the same way as from the east to west in the S.W. monsoon.

*Notice concerning Rains in the Strait.*—It must not be forgotten in navigating the strait that rainy weather, which commences on the western side of Luzon generally about the middle or end of June, does not reach the eastern part until the end of August or the middle of September. But nevertheless in the dry season showers will occur at any time, arising from the waterspouts which so frequently happen. The same are experienced on the east and west coasts of Luzon, included between the islands of Batunes and Babuyanes, and the whole Philippine Archipelago.

## Account of the Winds of the Strait of San Bernardino, Philippine Islands.

A knowledge of the winds prevailing in those parts frequented by navigators being of essential importance to them in shaping their courses, and enabling them to take that advantage of them which they should do at different seasons of the year, in order that they may be in possession of this information for the coasts and seas, included in

this Directory, we proceed to describe those which are found in all seasons of the year prevailing in these straits, explaining their peculiarities and physical causes.

The strait of San Bernardino is (like the Arabian Gulf) subject to two periodical winds, called monsoons, which are not so certainly regular as in that sea. But the pilots call these winds by their own names, viz., those of the south are called by them *Collas*, and those of the north *Breezes*.

The southerly monsoon generally commences in this strait about the middle or end of April. The wind settles at west and S.W., sometimes blowing fresh, which the pilots of these parts call virazones, from blowing alternately with the breezes. This wind does not set in at any fixed hour, nor is its duration always the same; at its commencement it veers to the east from the western mouth of the strait to the meridian of Marinduque and Tayabos, and it is stronger within these limits in proportion as rains and waterspouts with variable winds are experienced from northward or southward of east.

In April and May variable winds prevail from the eastward, varying to the northward and southward of east with showers, and whirlwinds and waterspouts with calms; the same weather also prevails in June until the S.W. and west monsoon sets in from the west, gathering strength with the rain and waterspouts, and overcoming the other winds in proportion to its strength.

Generally in June the southerly monsoon prevails with all its strength blowing from S.S.W., S.W., and west, which winds bring rain at Manila and the coast of Luzon, extending from the strait to the eastward as far as Marinduque.

In some years the southerly monsoon confines itself to the above winds which blow alternately with the easterly breezes abovementioned, thus facilitating the eastern entrance of the strait to all vessels. In other years the southerly monsoon changes with much violence in May, and then the S.W. winds are more variable in the months of June, July, August, and to the end of September, and in these years more time is left for easterly breezes and variable winds.

The northerly monsoon sets in about the time of the equinox in September, and in some years about the beginning of October. In September it will vary from N.E. round to S.W., but is more lasting from this latter quarter; and the changes are accompanied by calms, light winds, and waterspouts.

In the months of October, November, and to the middle of December winds from north to N.E. blow with great force, attended with rain. And in these months there is no safety in the strait on account of the Bagnios or violent hurricanes which prevail very much.

From the middle of December these gales are no longer found, and the wind is from N.E. to east, and even E.S.E. with heavy rains, this kind of weather continuing to the vernal equinox, March, from which time until the change of the monsoon to the south, the wind is variable on either side of east, sometimes blowing fresh, and at others light with calms and variable winds.

The changes of these monsoons is by no means sudden, and hurricanes always attend them, and these are by no means so general in the change of the monsoon to the southward, as they are in the change to the northern one, in which there is never a year without them in October and November.

As a general principle it must be observed that in the strait of San Bernardino the wind changes its direction, accommodating itself to the trend of the coast.

The pilots of this country apply the term Bagnios to what others call hurricanes or typhoons. It is a kind of wind that blows with inconceivable fury accompanied by tremendous seas and constant rain. They have various rules for knowing them, which, although sometimes proved fallacious, are for the most very fair. The N.W. quarter appears with an accumulation of dense clouds of different colours, green, blue, and red, which they call Tison, from the splendid fiery glow which produces all these colours. On these occasions a calm generally prevails, the sea has a peculiar aspect of uneasiness, displaying bad parts and various creatures of the sea that seldom or never are seen at its surface; it is agitated before a wind sets in from N.W. gradually with rain, but after six or seven hours nothing can withstand its force; changing to west, blowing furiously, and going as suddenly to S.W. and south where it gradually goes down; at other times the N.W. wind passes round by north to the southward, and coming round by the south to west recedes afterwards to south. All the Bagnios of the strait commence in the N.W.

The south and S.W. winds in these Bagnios are the strongest, and the stronger they are the less their duration, which is in general about twenty-four hours.

A light wind from N.N.W. with small rain and an overcast sky for some days is the common precursor of a Bagnio.

Captain Horsburgh, in his Directory, published in London in 1811, speaking of the Chinese monsoons, does not admit these predictions. But we can only say that we have experienced them in different Bagnios which we have met with in the strait. We know that the best indicator of them is the barometer; but as it is not every one who possesses this invaluable article, the navigator is supplied with this account of them in order that when he sees them, he may if possible seek security in some good anchorage.

## Gulf of Marianas.

The Marianas Gulf (according to the Philippine Island navigators) is the name applied to the sea between the submarine range which is marked by the Marianne islands and the coast from Cape Espiritu Santo, on the N.E. part of Samar of the Philippine Archipelago as far northward as the southern point of Isle Formosa. The same winds are found in this gulf as in the Strait of San Bernardino and the China Sea, with the difference that in the Cordillera of the said islands and some distance to the westward, the southerly monsoon blows for four

months, and the northerly monsoon for eight months; the former leaving large intervals for the breezes and variable winds from N.E., S.E., and N.W. Vessels with the assistance of these from any part of the world can easily enter the Strait of San Bernardino, although they may suffer from this monsoon which blows with considerable force, attended with rain.

In the southerly monsoon fresh N.E. winds blow in the channels between Formosa and the Batunes islands in the months of July, August, and September. Vessels which have left Manila for New Spain having passed the channel between the Batunes and Babuyanes, have experienced strong S.W. winds with which they have cleared the Marianas Gulf: they have also had these winds during the northern breezes of March, April, and May, with light winds, also from S.W. with which they have made their passage through those channels, such winds being contrary to the monsoon, but have enabled them to make their voyage to New Spain.

In the Marianas Gulf in the months of September and October, the monsoon does not always change with gales which happen when the southerly monsoon has prevailed with little intermission in the months of July, August, and September, but at the same time the Equinox must be considered as a dangerous season.

It would appear from experience that it would be prudent to avoid making free with the land in these seas from the middle of September to the 15th of December, for between these dates there is no good track to adopt, nor security in navigation from the severity of the hurricanes by which they are frequented.

The safest period is from December to April; and at other times of the year it may be navigated with more or less danger without the necessity of wintering in the ports of Palapa or Sisivan, for which instructions have been given herein in the navigation of the Strait against the monsoon.

From September most dangerous storms are met with in this gulf, near the island of Formosa, the Batunes and the northern part of Luzon, and to the eastward of the islands in the Japanese archipelago. These storms rage with great fury near the coasts, and in proportion to the distance from them the strength of the gales lessen.

In June, July, and August, most severe gales have been experienced in the channels which the North part of Luzon forms with the southern part of Formosa, the Batunes and Babuyanes. In that tremendous hurricane of June, 1797, Captain Clark had the barometer as low as 29·7, according to his journal, and had fine weather with it as low as 29·1.

In the northerly monsoon, in September to November (the general time of these storms), they are from north to N.E., and end to the eastward of south: and in the southerly monsoon they are experienced from N.W. to south by the west, sometimes making the tour of the horizon.

In the vicinity of Cape del Espiritu Santo the current sets N.W. in both monsoons. On the east coast of Luzon from point Montufar to

Cape Engano, the direction of the current is north. In the channels between the Babuyanes and the north coast of Luzon, the tide is found setting N.W. and S.E. In the channels of the said islands with the Batunes, the current sets N.W. in the southerly monsoon. In the channel which the Batunes form with the southern part of Formosa and Tabaco Miguel, it generally sets between N.W. and N.E., except in the N.E. monsoon, or when it blows strongly from the eastward, when it sometimes sets to the westward.

[We have now completed our translation of the Spanish description in the Anuario of 1869: but may hereafter refer to a portion in a former number of that work.—ED.]

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## REPORT OF CAPTAIN T. A. B. SPRATT, C.B., ON PORT SAID.

*(Concluded from page 87.)*

HAVING thus shown that the sand of the Rosetta mouth extends along the whole coast to the Damietta branch, we will refer more particularly to the indications of its easterly movement within the depths of the sea.

On examining the bottom off and to the eastward of the Brulos promontory, it was ascertained that to a distance of three miles from the shore, and to a depth of six fathoms, it consists of almost pure silicious sand, with a few broken shells, and but little mud; but at twelve miles in thirty fathoms it was wholly coral sand, or pure sea productions. Also that to the eastward there exist knolls and isolated ridges of pure silicious sand, surrounded by deep water and muddy bottom.

The predominance of sand off this projection arises from its being the concentrating point of the littoral currents and prevailing ground swell. These with W. and N.W. gales, carry to it those deposits set in motion from off the mouth of the Rosetta branch, and which by continual agitation from this motion are freed from the muddy matter, which becomes dispersed to greater distances. All south-west and westerly gales will evidently cause a ground swell directly along this part of the shore of the delta. But a N.W. wind will cause a ground swell somewhat oblique to the shore; and hence a concentration of the matter at the point of convergence of littoral movements, results at this prominence forming Cape Brulos.

It is therefore, evident that both these effects, combined with currents, must cause a considerable advance of the sand in the shallower part of the littoral zone during the continuance of each gale; and that the south-west and westerly swell will carry the sand forming the shore of Cape Brulos, and the shallows off the promontory, directly before it, that is, nearly parallel to the shore. Then as the bottom

declines in that direction, that is to the eastward, across the bay to Damietta, this decline aids the advance of matter across the bay, which advance, no doubt occurs in heavy gales to the depth of eight and ten fathoms or even more. As a proof of the movement of the sea bottom in those depths, I have seen in deep bays on the coast of the Mediterranean, where no current existed generally, and where only a wave movement could affect its sandy bottom, the sand at those depths as rippled as a sea beach, on the surface of a sand dune.

It has been shown that the grosser particles of the Nile's sand will be easily transported from the shallows off Cape Brulos, before a ground swell from the west, into the deeper water across the gorges of the Pelusium Bay.

But as the bottom rises again by the mouth of the Damietta branch opposite to it, the wave and current influence is insufficient to transport the grosser matter of the incline; and thus it will accumulate there, and form banks and ridges in the gorge of the bay just as they appear. But during heavy gales, the matter is again advanced, either to the near shore or to the eastward as before.

The Nile during every high flood transports numerous fragments of pottery and brick to the sea with its deposits; and this debris of brick and pottery can be traced along the whole coast from Rosetta to Ras el Ghels. Some, no doubt, is carried out to these outlying banks, and therefore these fragments of pottery may form their nucleus.

By Captain Mansell's excellent survey of this difficult coast it appears that there are three ridges or banks between the Brulos Cape and Damietta mouth, occasioned probably from this cause. The surfaces of these banks are comprised of coarse silicious sand, identical with that brought down by the Nile, and also that forming the dunes on the shore at Cape Brulos.

No mud was found with the sand of these banks; and only in the deeps between them or outside of them in deeper water, so that from three to six fathoms over them, they are quite free of any muddy matter. And even in ten fathoms we found sometimes the same pure coarse silicious sand; shewing that in every gale the surface of these banks, although so deep, must be in motion as quicksands. But with a tranquil sea a thin layer of weed may be deposited over them, and thus not only their positions but the depths over the banks are subject to change.

Under the movement produced by heavy winter gales, a great reduction of them must result. And thus a continual loss of the lesser particles towards the east, and a continuous re-supply from the Rosetta mouth to the west of them takes place.

Such seems to me to be the origin of these isolated ridges in the gorge of this bay between Brulos and Damietta. And as the coarse sand composing them is not different from the sands of the desert near the Pyramids, or on the route to Suez, they must undoubtedly be all the gifts of the Nile. But these banks indicate only a minor part of the effects of the wave movement. The greater part, no doubt, would be on the line of littoral shallows near the shore.

Thus then is shown that whilst the Nile's influence to the westward of that mouth does not exceed a distance of ten or twelve miles, to the east it is traceable as far as the Damietta branch as mingling with its deposits, and finally having a more easterly dispersal. This mud and sand is mainly traceable as a littoral zone of about twelve miles broad. For at the distance of thirteen miles in the depth of thirteen fathoms, the bottom contained no trace of the Nile's deposits, but pure coral, coral sand, and broken shells.

Hence, also, the assumed dispersal of the Nile's debris into the deeper parts of the sea, is not verified by an examination of its depths off the delta. Nor is the sand which it brings to the sea confined to the littoral zone within the depth of five fathoms, as asserted in the publications of M. Lesseps; but, on the contrary, there is certain evidence that a large quantity of it moves in much deeper water, even in eight and ten fathoms, as appears by the dredges obtained in the bay of Pelusium to the east of Damietta. There it is undoubtedly a point of much importance, in the question of drift and accumulation of matter, capable of forming shallows off the embouchure of a port or canal opening into that bay or of being thrown by the waves against any piers that may be constructed to form a harbour there, transverse to the littoral drift.

Another point that seemed desirable to test, was the power of the N.W. wave or ground swell, in moving any matter accumulated on that part of the shore where it is proposed to throw out piers for the formation of Port Said.

In a former report I have remarked, that although M. Lesseps has stated that the shores of this part of the coast indicate rather an erosion of the shore than an encroachment upon the sea, such appeared to me to be merely the evidence of a lateral advance of the beach under the prevailing wave movement on that prominent part of the coast, and not a permanent encroachment. But it is not like Cape Brulos, apparently a point of large accumulations. The dunes are not above five or six feet high between the Damietta mouth and the head of Pelusium Bay, for the prevailing westerly winds being more off than on the coast, and the prevailing wave having more a parallel than a direct or oblique action on it, as at Brulos, the sands cannot accumulate so rapidly as at Cape Brulos, as must be evident upon the least consideration or inspection of the chart of the bay.

One of Sir William Reid's proofs of the beach movement on the S.W. coast of England, when studying that question some years ago, was the finding of fragments of the cargo of a collier some miles to the eastward of the place on which she had been stranded. Some of the ashes and clinkers from the *Medina's* engine room were therefore deposited on the shore at the site of Port Said, so that by their colour they might be traced in their dispersion. They were deposited in a heap above the water's edge, directly off the beacon which had been erected there during the commencement of 1847, when an Egyptian corvette was moored off there to test the anchorage.

On returning to the place in twelve days, not a vestige of the heap

remained to indicate even the spot where it lay, although it amounted to nearly two tons; nor on the shore to the northward for 500 or 600 yards, could a single fragment of clinker be found. But on following the beach to the southward, in the direction of the prevailing wave movement, some clinkers weighing about two ounces were found dispersed to a distance of 1500 yards, and at 240 yards I picked up one clinker that weighed three and half lbs., also at 600 and 700 yards several that weighed from a quarter to half a pound. The greater portion were, however, buried beneath the sand of the beach with which they had been commingled in their movement.

Thus there was a positive evidence of the great easterly movement of the shore and littoral shallows along this coast, which during a succession of winter gales, the prevailing N.W. breezes at the period of high Nile, must cause a continuous progression of an immense quantity of the sands and matter, carried out by the turbid river at these seasons.

Another important point indicating the direction of this movement revealed itself also at the head of the bay of Tinah, in a quanity of broken pottery and bricks, ancient and modern, scattered on the shore at the highest and lowest surf margin, which had come wholly from the mouths of the Nile, dispersed along the coast to the eastward by its littoral currents and the prevailing ground swell.

This was the account of the natives whom we found at Ghemil and Foum Om-Farez, besides it was afterwards traced to Rasel Ghels, and no doubt exists along the coast to El Arish and Syria. Indeed, the easterly drift from the Nile thus far seems proved also by the fact, that the sponge divers never find sponges between Alexandria and Jaffa, and first only at the Marabout point, entering Alexandria.

Even high on the sides of the moving dunes at Cape Brulos, these fragments of pottery are met with, showing that the sea, the same cause had brought them there that had found and accumulated the sands into moving dunes; and showing also their transport. Some of the fragments had evidently been in deep water, for a whole brick was found on the beach near Port Said, with oysters on it, which with a fragment of a water jar five inches square, dredged in six fathoms water, a mile and a half off the headland of Ras Burun or Ras el Ghels, has been preserved as sufficient proof that they are even carried thus far from the Nile, and apparently are moved in deep water across the bay, before the heavier ground swells.

Fragments of concrete strewed with the pottery in some parts were also found in great numbers; particularly on the prominent parts of the coast, where there is a concentration of the wave movement, showing that where the pottery was numerous the fragments of concrete also were numerous.

This concrete is composed of sea shell imbeded in silicious and iron sand, cemented together. The induration seems to be rapid, and for the most part confined to shallow water, for a portion of a tree on the beach near the tower of Om-Farez had one side completely incrusted with this agglomerated sand, whilst the other side that had not been imbeded, was honeycombed by wood-boring shells.

Iron sand is much found on all parts of the shore of the delta, particularly where the sand dunes are blown far within the shore, the heavy particles of iron being then left behind, and it is also generally abundant on some of the sandbanks which occur within the river. It is probable that some of these outlying banks west of Damietta, and between it and Ras Burun or Ras el Ghels, have similar concretes forming on their shallower parts. For in two or three places in dredging off the coast, as in four or five fathoms off Brulos Boghaz, and in twelve fathoms off Damietta mouth, the dredge was entangled on a hard and fixed bottom that would yield no fragments but broken shells. For some of the sand sifted from dredges in Pelusium Bay there was ten per cent. of iron sand, which the magnet removed from it when dry, the rest being nearly all silicious sand. The sand thus sifted from a portion of each dredge, tested by Mr. Wilcox, the surgeon of the *Medina*, showed that there is fully an average of ninety per cent. of pure silicious sand (and therefore pure Nile deposit) in all the sand sifted from the mud in every dredge within Pelusium Bay, and within the distance of ten and twelve miles off the whole delta, where the Nile debris prevailed.

Thus the facts which have resulted from these dredges, show that the sea bed off the delta of the Nile contains a large proportion of silicious sand much outside the depth of twenty-five feet, where it is proposed to terminate the piers for Port Said, that must undoubtedly have drifted from the Nile. And the whole nature of the bottom, whether composed of sandy mud, muddy sand, or pure sand, according to the accidental proportion which the waves and currents leave, is identical with the Nile's sediment, and not with coast abrasion or sea productions. It has all come from the Nile.

Such, without doubt, is a very important fact resulting from this investigation, as is also the ascertaining the quantity of Nile sand that is dispersed in the different depths within its influence. From having been carried there by the littoral wave and current during heavy gales, this sand is consequently capable of being again moved by them, so as to embarrass a harbour formed to leeward of their movement, as in the bay of Pelusium. From the foregoing facts now established, the easterly dispersion of the whole Nile's deposit as far as Ras Burun or Ras el Ghels and Syria by the wave movement cannot be now doubted, since the portions of each dredge, amounting to nearly 200, are now preserved, and may be further tested, if desired.

And whether it be pure mud, sand, or sand and mud, that will be thus constantly carried to the eastward on a harbour formed in Pelusium Bay, it is all the Nile's deposit. Therefore it seems that the cost of any engineering works for its constant removal must be enormous, if indeed any amount of dredging capable of being carried on off the exposed mouth of such a dead water canal as the proposed salt-water canal of Suez, will keep down the accumulation that must result from littoral movement either as blown, or wave and current driven sand, that is undoubtedly continually drifted from the Rosetta and Damietta mouths of the Nile into and across Pelusium Bay.

The piercing of the Alps for a railway is comprehensible, as a possible project, because on the day the passage is opened the main difficulties are overcome. But to endeavour to contend in perpetuity by dredging or by prolongation of piers against the whole littoral movement of the Nile's deposit on the embouchure of a dead water harbour is only the commencement of a perpetual difficulty, connected with the gigantic engineering project of the proposed canalization of the Isthmus of Suez, with a channel of twenty-seven feet deep. For every gale will obstruct the navigation, and crowd the bay and canal with detained shipping, will renew the obstruction and difficulty of ingress and egress, by throwing forward continually the sands and moving matter on the mouth of the harbour and raising its shallows.

In calm weather Pelusium Bay is free of any current of consideration. But a few hours of a fresh breeze or gale from the westward, be it S.W., west, or N.W., soon changes its waters into a sheet of reddish brown fluid, and forces also a strong littoral current along the whole shore. In attempting to land there at the commencement of a fresh N.W. breeze, and whilst anchored in my boat in eight feet of water just outside of the line of surf, to see if landing was practicable, the boat was carried to the eastward of her anchor, and brought nearly broadside to the swell by the struggle of the littoral current there, and on testing it by the log I found it running one knot per hour. But no doubt it was much increased later in the day, as the wind and swell greatly increased.

Six dunes at the head of the Pelusium Bay were traced for nearly two miles inland, and their surfaces were found not fixed, but entirely composed of the same silicious sand as the shores of the delta, and the shallows off the coast, indicating most clearly a movement of their surface particles to the S.E. and eastward. Even fragments of the Nile pottery may be found on them more than a mile inland, and more than 100 feet above the sea; fragments that must have been driven from the shore by the wind, as the sand has been. And although the inner sand ridges are dotted with succulent herbage from one to two feet in height, and also with a few woody shrubs of the same nature, averaging from three to four feet in height, and they enclose beside a succession of small hollows or local plains on which this succulent herbage grows thickest, yet the south side of the hills are all steep, and all show a gradual encroachment of the sand on these plains, and also its retirement on the opposite side. For the whole surface is set in motion every gale; the scattered bushes forming no permanent stop to it. And as it accumulates around their stems they each form a small hillock of sand, whilst between them, the ground is still a moving, loose, silicious sand; so moveable in fact, that in strong westerly breezes the hills are obscured from view at two or three miles distance, by the atmosphere being then converted into a mist of dust, from moving particles which it contains.

Since M. de Lesseps does not represent these dunes in his map, it may be doubted whether he ever saw them. Be this as it may, he makes a plain of nearly two miles broad to separate the higher sand-

hills from the sea. And this plain he continues as far as the ruined fortress, now called Mehemdia by the Arabs, or Gerras in the Atlas of M. de Lesseps, illustrating his reports, from the supposition that it was the site of an ancient fortress of that name.

It is possible that these lower dunes now bordering the coast for nearly four miles, that we found to be from thirty to forty feet high, may have been formed in the interval since M. de Lesseps visited the coast. The Arab shepherds with whom we communicated, on finding them pasturing their flocks on the upper ridges, stated, that the dunes near the sea all shifted, being carried into the interior. The removal and re-accumulation of all these seashore dunes may not occur each year, but still as they do not appear on M. de Lesseps' map, and may not have existed then, they would indicate the enormous amount of sand which is drifted from the Nile's embouchure past the site of Port Said, thus to re-accumulate so soon at the head of Pelusium Bay only, independent of that which is deposited on the promontory of Ras el Gels (or Ras Burum) and to the coast of Syria.

The excellent chart of the west coast of the bay of Pelusium by M. Larouse Sous-ingenieur Hydrographe de la Marine, published also in M. de Lesseps' atlas, unfortunately terminates just were we found the sandhills to begin. Thus I have no means of knowing whether they existed at the time when that survey was made in the year 1853. But that they exist now, and are derived from the sea, cannot be doubted, and that they existed also on the same part of the shore at the end of last century is also certified by the great French work on Egypt.

These moving sands of the desert between Egypt and Syria, consisting of the drift sand at the head of Pelusium Bay, was thus necessary to point out, from a conviction, that they indicate that a large amount of deposits, which the Nile brings to the sea, is drifted along the shallows of that part of the coast where it is proposed that a deep entrance to the Suez canal should be maintained without any engineering difficulties, and at little cost; and especially to show the error of the opinions in reference to it in the Report of the International Commission, No. 8, 2nd Series, and dated December 31st, 1855, on board the Egyptian frigate the *Nile*.

A well sheltered capacious harbour will be necessary wherever the canal may be made, especially if in Pelusium bay, in consequence of the obstruction arising from littoral drift which every gale will throw across the embouchure and over the piers. There will then be the consequent detention of a large number of shipping during its clearance by dredging, if it be really possible to remove such an obstacle by dredging. The success of such attempts, through the exposure to the sea, may well be doubted; indeed in gales dredging will be impossible. For the traverse swell and current will be continually counteracting the effect of the dredges by causing the mud and sand on the windward side of the part scooped out to flow into the excavation, almost if not quite as rapid as it is made, rendering the operation endless.

In a gigantic engineering project, involving such an enormous outlay for its execution as well as its annual maintenance, as these facts

suggest, it is necessary that the commercial interests invited to speculate in it should thoroughly understand it, so as to form an opinion whether millions of money will not be fruitlessly lost in the depths of the sea. The experience of the past in the difficulties of engineering against similar hydraulic and physical conditions elsewhere should not be forgotten.

And will not the infiltration through the sides of the canal excavated in such loose matter, and at a level so much below the sea and the Nile, more than keep pace with any amount of dredging which it may be possible to apply consistent with maintaining the navigation open? For this infiltration of sand from the sides of such canals within the delta, by the Commission's own showing, defeats all efforts to contend against it when dug below the Nile's low-water level, as the following extract explains (section 15, 3rd series): "It appeared to them (the Commission) impossible to maintain in proper repair a canal, the bottom of which was below the line of low-water in the Nile, otherwise than by enormous expenditure; and even if incurring this cost, it was uncertain whether the desired result would be obtained. In all cases when an attempt has been made to dig a canal below the low-water level, and more especially on the outskirts of the desert in Ghettal Bay, for instance, it invariably happens that about the level of low-water a bed of loose sand is met with, as was the case at Masterond. This constitutes an enormous difficulty, and a source of expense of which it is hardly possible to form any previous estimate. In the case of the Moëze, all attempts to dredge it have been given up." Here then is an opinion, supported by facts, that should be kept in mind in any discussion on the practicability of the canalization of the Isthmus of Suez. No less so must the great preponderance of sand which the borings across the isthmus show to be present below the low-water level of the Nile and Mediterranean, all of it on the direct line of the proposed canal, and which I believe in ancient days must have come from the Nile.

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## PROVISION GRIEVANCES OF THE MERCHANT SEAMAN, *in default of Law for British Ships.*

MR. EDITOR,—Being a constant reader of the *Nautical*, I was glad to find that there is some one, who will take the trouble of writing about the provisioning of our English Merchant Ships; and now that he has broken the ground, I take the liberty of writing a few lines on the same subject, knowing that you will put them ship-shape or Bristol fashion before the eyes of the public.

Being away from home until June last, I did not receive the new lime juice on board until sailing on my present voyage. I did taste it at our Christmas dinner in Hong Kong to try it, and as our friend of the January (1869) number says, he wonders how two liquids could

have the same name and yet be so different in taste, I can assure him there is more than he wonders at. The change is marvellous! I don't know anything to compare to it, unless it be Professor Anderson's magic bottle in which he kept all kinds of liquids.

Now, Mr. Editor, if there could only be as great a change made in the beef and pork that is sent on board of Merchant ships on those long voyages, it would save a great deal of grumbling and growling. There would not be so much talk of *scurvy* as there is just now, if the christian portion of the M.Ps. had only taken the provisions in hand at the same time that they had lime juice, and the medicine chests! What a benefit they would have conferred on poor Canvas Back!! I have no doubt that if some of the worthy Members of our Houses of Parliament had to sit down to a bit of the beef that is at present *allowed* to be sent on board our ships for the use of the men, even with all what our Yankee friends call "fixings" added to it from the shore, they would soon turn up their noses at it! and yet poor Jack on a rice day, when he has his piece of mahogany on one side and his rice on the other, and knows that this is all he has for his dinner he does the same. But if he does not or cannot eat that he has nothing to fall back on but a dry biscuit, and this perhaps full of maggots or weevils. All that he has in the shape of *fixings* is his drop of vinegar. Who can wonder that he should be easily persuaded to go with the first crimp that meets him on shore, with promises of a good dinner after coming from an Indian passage.

We all know, Sir, that two-thirds of the bread that is carried to sea is made from the blighted grain that a farmer would not give to his pigs! Sometimes it may be gained from the slightly damaged portion saved from a ship's cargo, that cannot be put up to sale for shore use! Just fancy when you go into a provision merchant's store, to find him quoting the bread at four or five different prices. Then again, the way that it is kept on board of a great many ships is a disgrace to their owners. Why can't they find tanks for it? I am sure these are cheap enough. Indeed, if owners knew the quantity of bread that is thrown overboard as unfit for use, they would find out that it would be to their interest to have tanks made to fit in all small spaces. Why, Sir, even the cost of the bags being saved would go far to repay them in a voyage or two! I have had bread on board for two years on the coast of China, and when we have come to use it, have found it as fresh as the day it was put into the tanks.

Every one who has been accustomed to carry China Chow Chow cargoes, knows well that they are liable to have an abundance of crawling insects left on board afterwards, and if the bread is in an open locker these visitors soon get there. Now the tanks I have on board hold from one to six hundredweight of bread. As to the flour I hardly know what to say about it. There are just as many qualities of it as of the bread, and it is generally some months' old before coming on board of ship. It turns sour of course as soon as ever the cask is opened. Then the tea and coffee, what are they? They only damage good water by either of them being put into it! The very

lowest boarding house that poor Jack can get into, will give him something that will taste more like tea or coffee than that which he gets on board of a great many British Merchant ships!

Now, what we want, Mr. Editor, is some one who will take up this subject in earnest, and get the Board of Trade to take it up too, in spite of what that big gun Mr. Bright may say on the subject. Perhaps if sailors were allowed to vote at election time, or Mr. B. was fed on their pie for a month or two, he would tell a different story to the next meeting he might be at, to see if nothing could be done for poor Jack. I expect as far as the votes are concerned, he would be like Mr. Smiggy McPlural, when he put up for the Presidency of America, and he promised the Dutch or German portion of his voters that he would have rivers of Leger Beer running through the country, and cultivate the Praries with sourkrout, and to the Irish portion he even said he would abolish the potatoe rot, and do away with the punishment for assault and battery. I have no doubt but our worthy Member would promise as much or more than that, if he found the day going against him.

I for one, Mr. Editor, would like to know why the Board of Trade cannot appoint some one to inspect Sailors' provisions? All Government emigrants have their provisions examined, even the emancipated slaves that are taken from St. Helena are not allowed to live on the same quality of provisions as they had before being emancipated. Their provisions are *inspected* before being supplied to them! Even the provisions the coolies are fed on are of a superior quality; I have myself in Hong Kong seen salt provisions rejected as not fit for *coolie ships*, and yet the very same provisions have been allowed to go on board a Merchant ship to feed Sailors on! Many a time have I wondered if people on shore really do think that Sailors are made of different materials to them—or that their stomachs must be stronger, could they only see what kind of stuff poor Jack has to eat.

Why, Mr. Editor, should our prisoners and paupers be more thought of than our Sailors? Which of them is it that does the most good for the country? Will any Member of the Government answer these questions? We know that all prison food is inspected, even that which is given in the casual wards. People on shore will not be imposed on with bad provisions. There inspectors are appointed for every market, and I have not the least hesitation in saying, that if one half of our Sailors' food was to come under the eyes of those inspectors, they would order it to be destroyed as not fit for use.

There is no class of people in Great Britain so much neglected as our Merchant Sailors are, and none are left so much to the mercy of employers as poor Jack! Not only has he to trust to them for his pay as any one employed on shore is, but unhappily he has also to trust to them for his food likewise! The commonest labourer can always suit his breakfast or dinner to his taste, but Jack must take what is given to him be it whatever quality it may. Now, Mr. Editor, if we could only get the Board of Trade to look earnestly at this subject and take it in hand, let them begin with the supplies to

Merchant ships, and make it fineable to the owners of ships to supply them with those third and fourth rate qualities of provisions, or even to have them on their premises; the evil would soon be remedied. Look at the lime juice now compared with what it used to be. If we could only get inspectors appointed that would go heart and soul into subjects, as Mr. Harris, the Nautical Assessor, goes into his, we should be all right. We should soon have good provisions to take to sea with us. But don't let us have those inspectors taken from amongst ship-owners. Let us have some persons not interested in our ships. Our friend in the January number is of opinion that we should not object to a small tax for the payment of such inspectors, I would willingly pay my part towards it; but if I mistake not, I think the Board of Trade has a good fund in hand that it might be paid from without any one feeling it! I don't think that all the examination fees are necessary to pay the salaries of the examiners, and why should not some of this money be taken to pay honest inspectors of our provisions? But it is evident that until the Board of Trade or some other board makes the scale and quality of provisions compulsory on our employers, we shall have no change.

There is no use whatever in trusting to the generosity of owners. A great many of them don't know what provisioning a ship means, further than that it is a word they sometimes see in books! As it is of no use to them, or having it left in their hands to alter the scale of the £ s. d., they persevere in letting it alone.

Whilst I am writing this, I have just had brought before me a letter containing a list of *prices of provisions* from a certain provision merchant in Liverpool, wherein, after quoting his prices, he tells me that if I like, he will supply me for an Indian voyage at the rate of *sevenpence* per head! I think I hear you say, I wonder what quality these provisions will be of. But besides this I have a dozen price-lists from different parties, and there are no two alike. As long as these merchants are allowed to offer their prices they will always find owners to take them! I quite agree with our friend in the February number (1869), about the QUALITY being looked to before the *quantity*, and likewise having a scale drawn up for harbour service. Those extra vegetables or anti-scorbutics mentioned in it, as to these I think I see a small note in pencil made opposite to such items by the clerk, to call the attention of the Principals thereunto! and then see the pen go through such extras; and I don't doubt but what the principal part of your readers know who has got to pay for Jack's *extra anti-scorbutics!* after the pen has scored it out.

I hope that there will be some attention paid to the memorial that I see in the April number, especially to paragraphs Nos. 8 and 9. It is high time there was something done to protect the English Sailor! He may have served five or six years' apprenticeship. In contrast to him the foreigner comes to England, he has served no apprenticeship at all, he ships on board of an English craft, and receives the same rate of pay as the English seaman. But he is not worth the half of it! It is not a good seaman that the owners care about now; it is the

man who can work best at the pump, and it will continue to be so as long as ships are insured to their full value!

The A. Bs., or real seamen, should pass an examination. But I have more to say, about clothing sufficient for a winter's passage down the channel, about cooks, and about stewards, that must be reserved for another opportunity, as this letter is getting too long. From yours,

VERITAS.

*To the Editor of the Nautical Magazine.*

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## SLAVE CRUISING ON THE SOUTH-EAST COAST OF AFRICA, FROM A MEDICAL POINT OF VIEW.

AN Army Medico-Chirurgical Society appears to have been established at Portsmouth, at which an interesting paper on the Slave Trade of the Eastern coast of Africa was read, at one of its monthly meetings, on Wednesday, the 2nd of February, by Dr. Stone, R.N. There is so much interesting and important information in it that we gladly transfer it to our own pages from the columns of that old established paper the *Hants. Telegraph.* Such papers indeed tend to promote the cause of christian commiseration, and will materially contribute to put down this unholy traffic.

The author says:—

A brief account of slavery as it is carried on in this part of the world may be acceptable before entering into the medical details of the subject.

At present the principal actors in this traffic are Arabs from the Persian Gulf, who being too lazy and indolent to grow their own corn, make their own clothes, or, in fact, do anything whatever for themselves which they can avoid, have from time immemorial been slave owners. These generally leave the Persian Gulf in dhows early in the year and make for Zanzibar, which is about the chief market. Here they take in their cargoes and then make their way back by the S.W. monsoon.

The supply of slaves is principally kept up from the interior of Africa. A strong chieftain conquers a weaker neighbour, takes his subjects prisoners, and transports them to the markets along the coast, where they are purchased by dealers, generally Arabs, who, in turn, sell them to the northern Arabs in the season. The prisoners are generally utilized on their journey from the interior, being made to carry elephants' tusks on their shoulders for the ivory market. On arrival at one of these markets, Zanzibar for instance, they are sorted into lots according to sex, age, size, and physical capacity, and disposed of accordingly.

The slave market at Zanzibar is a curious place. You come suddenly upon it on turning a corner from a narrow street. It is an open space

of about an acre in extent, and here the slaves are arranged in rows, old men by themselves, old women by themselves, young men, young women, children (male and female), all in separate lots, stand in rows, waiting listlessly until some purchaser bids for them.

The Arabs examine their purchases very critically, walking up and down the lines, looking at their eyes, ears, teeth, tongues, skins, etc., with a sort of professional minuteness. If they wish to examine a valuable purchase with more than ordinary care they withdraw into a private enclosure set aside for the purpose. Often as many as 500 or 600 slaves change hands daily; many of them look jaded and tired after their long journey from the interior, but as a rule they have not been much pressed, and their condition is generally very favourable so far.

Their miseries begin when they are packed in the dhows, which are small vessels averaging from 70 to 150 tons burthen, and carrying from 150 to 250 slaves. There is a sort of half deck running round the dhow, below which the slaves are stowed in a sitting posture, each one closely squeezed between the legs of the slave behind. During the voyage their diet consists of millet seed pulped and water, and this, coupled with their miserable condition on board the dhows, reduces them to a wretched plight in a few days. On one occasion we captured a dhow containing about 170 slaves, who had been three weeks on board. They were all reduced to mere skeletons, and in many instances could not totter on their cramped limbs. Most of them had large, sluggish ulcers, chiefly on prominent parts, elbows, buttocks, and knees, from being so closely packed, and they were all enveloped in their own excreta, having to perform all demands of nature as they crouched huddled together. Nearly all of them suffered from aggravated scabies and many from large anthraces. A few had a species of low fever, and some two or three suffered from acute pulmonary affections. They were regarded however by our officers as rather better off than cargoes captured the year before, being free from cholera, small-pox, or other epidemic.

The smell from a slave dhow even at a mile distance is very offensive, and is of course very conclusive evidence as to the nature of her cargo before boarding, as the slaves cannot be seen, being below the gunwale. Our first procedure on getting them on board was to cleanse them, which was done by gently playing a hose over the whole mass. They were then dried and made as comfortable as the limited area of our deck would admit. A very few days' treatment brought their sores into a healthy condition, and from crawling along the deck in a short time they were able to walk and run.

The horrors of an epidemic of choleraic diarrhœa amongst upwards of two hundred liberated slaves, crowded and huddled together on our small upper deck, are more easily imagined than described, most of them being too weak to move from the spot where they lay. This state of things was brought about by our omitting, as we afterwards learned, to make them separate the husks from the millet seed which they used for food before pounding it. The husk, by irritating the

intestinal canal, brought on violent diarrhœa, whereby we lost a considerable number by death. Small pox, too, sometimes occurs amongst liberated slaves on board a man-of-war. On liberation the cargoes are usually brought to Aden, where some are kept as domestic servants compulsorily for a period of years, after which they are freed; others are sent to Bombay, and some go to Seychelle.

From the foregoing account it will be observed that the greater part of the first half of the year is spent by cruisers on the cruising ground, so that vessels thus engaged are prevented from getting regular supplies of provisions and necessaries for lengthened periods. Aden or Zanzibar are the two places where vessels chiefly get supplies, and at neither of these is there a regular naval depôt. The result is that provisions, soups, tobacco, lime juice, rum, biscuit, and even medicines have to be purchased from Parsee dealers, who charge an exhorbitant price, and supply inferior articles. The rum is simply modified arrack, a not very wholesome stimulant. The lime juice is generally execrable stuff, the basis of which is some mineral acid. It is quite useless as a remedial agent, having quite failed to arrest the tendency to scurvy, which sometimes developed itself on board. All the other things supplied are likewise of inferior quality.

Notwithstanding this the health of ships' crews employed there is tolerably fair. However, there can be little doubt but that the health standard, to say nothing of the comfort of the men might be considerably raised by a good supply of the necessaries mentioned above, particularly lime-juice, so much required owing to the difficulty of having a constant supply of vegetables whilst cruising. Medicines are often much wanted. Even at Aden they can only be procured at considerable expense from the Parsee merchants or from the army medical authorities, who kindly oblige us occasionally. A naval depôt at Zanzibar or Seychelles, from the central position of either of these places, would obviate all this; a sick quarter, too, in so healthy a place as Seychelles, might not be out of place. Such a measure would not only be beneficial to the cruisers, but would also prove peculiarly economical, as really good necessaries might then be issued at a much lower cost.

A naval depôt could always afford a constant supply of really good salt beef, which, when tolerably decent, is by no means deficient in nutritive matter. It is only after continued immersion that the albuminous and nitrogenous elements are completely absorbed by the brine. Many of the diseases occurring on board ships serving on this station will be found to be the direct results of a deficient tone of constitution, brought about by want of a uniformly nutritious diet, and from the deficient supply of fresh vegetables, or an efficient substitute in the shape of good lime-juice. Thus chronic, indolent ulcers are frequent. These, no doubt, owe their long delay in healing to want of tone in the system, produced by imperfect nourishment. Scurvy, traces of which often present themselves, is due to the same cause.

Moon-blindness is probably another manifestation of deficient nutrition. A good proof of the direct influence of good diet is evidenced

here, as the disease usually disappears after a few days' generous living. Dr. Mansfield, serving in her Majesty's ship *Racoon*, first drew my attention to this fact, which he told me he had seen verified in several instances whilst serving on the Cape station and south east Coast of Africa. Remittent fever is frequent, and although not usually fatal, leaves debility, which lasts a long time. Here nutritious diet would no doubt be an incalculable benefit in influencing the subsequent effects of the disease. Rheumatism is frequent, and is probably the direct result of sleeping on deck, which practice is necessitated by the confined space and impure air below in small ships during the hot weather.

In conclusion, our sending out cruisers to suppress the traffic is believed by those well acquainted with the subject to be productive of some good and also of much evil. The close packing of cargoes, the avoidance of the shore during the voyage, and consequently the scanty supply of water and provisions allowed to the slaves, has all arisen since we sent ships to suppress the slave trade. Formerly the owners found it to their advantage to keep their cargoes in good health during the voyage. They, therefore, ran more dhows, and crowded them less. They also called into places along the coast as often as they required water and provisions, the result being that the slaves had a tolerably good time of it on board. Now, of course, they run great risk of capture by going in shore, and moreover they find it pays better to crowd one large dhow densely, though they may lose half the cargo through death, than to run the chance of shipping the same number comfortably in two or three vessels. No doubt a large number is liberated annually by the cruisers, but they are few in proportion to those annually transhipped.

Moreover, it is a question whether the condition of the released is much better than that of those who continue in slavery. If one might judge from the demeanour of liberated slaves, I should be inclined to think that it is almost a matter of indifference to them, particularly as their Arab masters are reputed to treat them tolerably well when once they get them on shore—in fact their position as slaves is said to bear a fair comparison with the compulsory servitude which awaits them in the event of our capturing them. I have been informed by European residents at Zanzibar, that all the miseries to which slaves on passage are now subjected are directly attributable to our well meant but certainly misdirected efforts to suppress the trade. Formerly they were conveyed leisurely to their destination—no overcrowding, no deficient diet, no want of water,—simply because their owners found it paid them better to keep their cargoes in health, leaving out of the question any motives of humanity which may possibly have influenced them. Now, the reverse is the case; they find it pays better to make a swift passage, avoiding the shore, and reducing the number of dhows engaged in transport to a minimum—hence the overcrowding and other evils.

The Honorary Secretary read the report by Surgeon-Major Leitch, 46th Regiment, of a case of bayonet wound in the chest in the person

of a soldier of that corps. The weapon had deeply penetrated the chest and left lung; a large quantity of blood escaped by the mouth, and for a time death appeared imminent; but by careful treatment the subject of the injury has made a complete recovery.

The Chairman read a paper by Assistant-Surgeon Maunsell on the presence of hydatid cysts in the beef used by soldiers in some parts of India, the object of the report being to support the generally received opinion that these cysts are nothing more than one condition of the parasite, which, when situated in the intestines, becomes developed into tapeworm. He observed that the subject was by no means attractive; and that, inasmuch as it has already been shown that the air we breathe and the water we drink contain living organic germs, so now it appears that the beef we eat is by no means free from them.

The proceedings then terminated.

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## The Royal National Life-boat Institution.

A Meeting of this Institution was held on Thursday, 3rd February, at its house, John Street, Adelphi—Mr. Thomas Chapman, F.R.S., V.P., in the chair. There were also present, Sir E. Perrott, Bart., Mr. W. H. Harton, Sir F. Arrow, deputy-master of the Trinity House, Admiral Ryder, Colonel Palmer, Admiral M'Hardy, Captain de St. Croix, Mr. George Palmer, Captain Ward, R.N., and Mr. Richard Lewis.

The minutes of the previous meeting having been read, the silver medal of the society, and a copy of the vote inscribed on vellum, were granted to its local honorary secretary at Abersoch, North Wales, the Rev. O. Lloyd Williams, and £42 9s. to the crew of the life-boat stationed there, in acknowledgment of their gallant services in putting off in the boat on the 14th and 15th January, and, after much difficulty, saving thirteen of the crew of the ship *Kenilworth*, of Liverpool, which was wrecked on St. Patrick's Causeway, in Cardigan Bay, during a N.W. Gale and in a heavy sea. The sum of £36 was also granted to the crew of the Barmouth life-boat for going off on the 14th January, to the same wreck, and saving eight of the crew. The two life-boats of the Society thus saved the whole of the officers and men, twenty-one in number. This ship, a most valuable one, was bound to Liverpool from New Orleans with a cargo of cotton, and her captain, who is an American, publicly testified his gratitude for the determined courage of the life-boat crews in saving the lives of himself and crew amidst the greatest dangers. The sum of £8 8s. was also voted to pay the expenses of the Porthdinllaen life-boat in bringing ashore the crew of three men from the schooner *Gronant*, of Carnarvon; the sum of £7 9s. to the Padstow life-boat for saving ten persons from the wrecked barque *Suez;* and £6 10s. to the crew of the Buddon Ness

life-boat for rescuing three men from the schooner *John Howard*, of Goole, which had gone on the Gaa Sands, at the mouth of the Tay.

The Ramsgate life-boat *Bradford*, in conjunction with the harbour steam-tug *Aid*, had saved two men from the smack *Whiff*, of that port, which struck on the Quern Shoal. Unfortunately, after grounding, a heavy breaker swept her deck, carrying away and drowning two of the hands long before the life-boat could possibly have got to their assistance. The Theddlethorpe life-boat had also brought safely ashore the crew, numbering fifteen persons, of a foreign vessel; and the *Newcastle*, Dundrum life-boat, had likewise brought four of the crew of the brigantine *Kelpie*, of Liverpool, to land. Rewards amounting to £170 were also granted to the crews of seventeen other life-boats of the Society for services during the storms of the past month. Rewards were also granted to the crews of shore-boats for saving life from various wrecks.

The silver medal of the Institution, a copy of its vote inscribed on vellum, and £5, were also voted to Mr. Edward Amis, coxswain of the Palling life-boat, on his retirement from that office, which he had held for many years. He had assisted in the boat to save a large number of lives from different wrecks.

Payments amounting to £2,500 were ordered to be made on various life-boat establishments. Mr. J. Robinson, jun., of Blyth, had forwarded £21 11s. to the Institution, being the amount he had collected for it from seamen visiting that port, making, with previous remittances, £41 5s. he had thus raised in aid of the life-boat cause. £4 1s. had likewise been forwarded to the Institution from Messrs. Bagnall's Sunday School Life-boat Association at Gold's-hill, West Bromwich, organised by the Rev. F. P. B. N. Hutton. The Horse Guards had sanctioned the medal of the Institution presented to officers of the army, non-commissioned officers, and soldiers, being worn in uniform, on the right breast, a record of the recipients being kept at head-quarters.

A new life-boat and transporting carriage had recently been forwarded to Whitby. It was reported that the French Shipwreck Society had presented its gold medal to Captain Ward, R.N., inspector of Life-boats to the English Life-boat Institution, in acknowledgment of his services as inventor of the cork life-belt used by the life-boat crews of both countries, and of his co-operation with the French society, which had now forty-five life-boats, all being on the plan of the English Life-boat Society, and which have already saved upwards of five hundred lives.

It was decided to station a large sailing life-boat at Palling, on the coast of Norfolk. Reports were read from the inspector and the assistant-inspector of life-boats on their recent visits to different life-boat stations, on which the proceedings then terminated.

## A Visit to Lord Howe Island, *Australian Seas.*

In continuation of the account in our last number, it appears that the exports are taken by a small ketch the *Sylph*, of eighteen tons, owned by Captain Field and Messrs. Thompson and Wainwright, which comes and goes about twice a year, bringing back supplies. This means of transit, however, is said to be inadequate, and with further facility much more could be produced. This vessel when not employed in this way remains in what is called the hole, at the north end of the island, inside the reef—this being rather singular and remarkable it is worth nothing. This hole has a circumference of 150 yards, with an average depth of two fathoms; and singular to say, although you can walk round the margin at low water spring tides, the bottom inside the reef as well as the beach consisting of coral *debris* shifting occasionally with the wind and seas, yet this hole keeps up an uniform depth—across this by a chain bridle the vessel is secured.

Exotics are becoming popular now—perhaps heretofore the population were more of a migratory and unsettled disposition. The common lemon grows rapidly, and bears abundant fruit. There is one old orange tree which produces ninety to one hundred dozen a year, besides thirty other trees, some of which will soon come into bearing. There is but one seedling peach tree at present in bearing, and that produces a fine clear stone fruit. Other young trees are coming on.

Plantains and bananas grow rapidly, and would produce abundant fruit if not allowed to grow too thick. In lieu of three or four plants, they have over twenty in the space.

Pappaw, or mammy apple, thrive well, producing forty to fifty fruit each plant. It was here noticed that both male and female plants bore edible and well-conditioned fruit, with this distinction—in the female plant the fruit, of an oval shape, are all clustered close under the base of the leaf stalk, whilst in the male the peduncle or fruit stalk was two feet long, and the fruit of a different shape, girt in at the centre.

One coffee plant in bearing looks hardy, and with fine glossy foliage.

The passion fruit, Edulis, has been introduced about two years since as well as the yellow guava. This latter may, as in Tahiti, become a nuisance.

The few grape vines remain untended, as the birds destroy the fruit before coming to maturity. This little pest is the silvereye, but about twice the size of our Australian type. The cape gooseberry and strawberry would also do well but from this cause, combined with the destructiveness of the goats. The castor oil plant *(Ricinus communis)* threatens to become a nuisance.

There are certain recognised regulations among the people which are rarely infringed upon; such as definition of hunting grounds, regulated prices of produce, boundaries of cultivation grounds, which must not be approached nearer to each other than what will allow a sufficient brake of palms to protect them against the wind.

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The houses are built of palms, with two or three exceptions, and thatched with the same material. This thatching looks particularly neat. The frond of what is called the thatch palm is doubled and looped over a batten, secured on the roof for that purpose. The feathery spray on the outside and the stalk on the inside close together, forming a close row of ribs—the outer covering forming by this means a thickness of seven or eight inches, cool, comfortable, and impervious to wet, and which lasts about seven years. In the two or three exceptions above alluded to, the houses are raised on calcareous blocks, procured close at hand, a couple of feet of base course, then boarded up with Australian pine, and painted, and roofed with galvanized iron. The designs are nearly all alike—one entrance-door in the centre, which forms a room of the better description; at either end are one, two, or more bedrooms, as occasion may require, but no fireplace.

The kitchen, or general room, is detached, and forms one compartment, with a fireplace in one end and larder in the other, the centre side occupied by a large table for meals, with a long stool at either side.

The live stock which has been recently introduced consists of a gelding and mare, the property of Captain Field and Mr. Thompson; one bull, two steers, and four heifers, none over eighteen months old, the property of Mr. Wainwright. The horses were put overboard from ships, and swam ashore; the horned cattle, as small as calves, taken down the ketch.

There is no general cemetery on the island; each party, when requisite, has his own little plot to deposit the remains of a friend or relative as its last resting-place. It is to be regretted that some of H.M. ships, which have a clergyman on board, have not called before now and consecrated a spot for this purpose. The people are very desirous that this should be done. There are other wants which may be easily supplied—such as an appointed registrar of births and deaths, who might also be postmaster. Their observance of the Sunday consists of a suspension of all forms of labour, but there is no public religious service.

There are but few children, and those very young. In a couple of years it will be necessary that they should receive at least a rudimentary education.

The general health of the people is good; dyspepsia being the rule, owing as it is supposed to so much pork diet. The constant use of epsom salts is, I should think, rather an aggravation than otherwise of their complaint. Deaths are rare.

Winds have not been regular for several years, the strongest gales are from the south-west. Cyclones from W.N.W. occasionally devastate a confined area of from forty to fifty yards wide; these are not of frequent occurrence.

Rain.—The heaviest is from the S.E. quarter, but showers are abundant throughout the year; there are no true periodical rains, although noticed at times more in April, May, or June—there is no rain guage on the island, and from its appearance one would be led to

suppose that little or none fell; we were, however, assured to the contrary.

Temperature—Not an instrument of any kind to record from. It is said that the summer is tolerably hot, but much more equalised than in Sydney, whilst the winter is very genial, no frost having been known.

Tides.—Rise and fall, six feet; full and change, 8h. 30m.

Fish are plentiful, and during the stay of the steamer from on board many blue fish, king fish, and rock cod were caught. At night abundance of sharks of the small-shoal kind, and for three months of the year salmon, travalley, and large mullet within the reefs are caught by line and hook; large eels in all the fresh water creeks; oysters are very rare, occasionally only two or three are got; in the fresh water the needle eel has been found.

The local names of plants are thatch palm, curly palm, umbrella palm, and small palm; and of timber for hardwood, scaly bark, rough bark, grey bark, yellow wood, lignumvitæ, black bark, bastard honeysuckle, ditto tamana, and mall wood, which is tough, a small mangrove, and kilmogue, a myrtaceæ from which a beverage in lieu of tea has been made.

The grasses are couch and a tufty grass (Sporobolus), introduced. The former has taken possession of all the old cultivations which have been adandoned. Natural grasses are of two or three kinds, and a Hyatrix binding the branch.

The present amount of acres under cultivation is about thirty; those which have been and are now under grass about one hundred; at present available for clearing, probably three hundred, the cost of which would be at least £8 an acre.

The season was too far advanced towards winter for the purpose of collecting good flowering specimens of botany—with but an exception of two. Such specimens, together with fruit-branches, or seed-vessels of all others were collected, and will be fully described by Mr. Moore hereafter. The same remark applies to the Cleoptera or Lepidoptera, which were either in other stages or concealed for the season. Such as were obtained will meet with attention from Mr. Krefft, the Curator of the Museum.

Botany.—After a close examination of the forests, it was remarkable to observe the total absence of Proteaceæ Pittosporaceæ, and almost the same in myrtaceæ, with but two exceptions of the latter, one of which Mellaleuca represented the tea tree Kilmogue of the inhabitants, the other a solitary Leptosperm, of good age, which had died leaving its seed vessels on the branches as a means of recognition. Epiphytical and parasytical plants are also poorly represented; one of the latter however is remarkable, and had in some instances taken possession of the tips of branches of the high trees, and not unlike cacolobia or polyganum, but with shorter and more fleshy joints.

Of the larger trees, the *Banyan*, a species of Ficus, stands pre-eminent—the huge trunks which have been formed by pendent roots supporting horizontal limbs of fine dimensions, which again have

thrown out shoots, interlacing overhead, forms a complete canopy covering a large area, admitting through the woven lattice piles of crystal light, leaving the lover of nature wrapt in wonder and admiration. And where intermediate spaces have been cleared, and now grassed and surrounded by these trees, the whole forms an amphitheatre of such vast dimensions, that the beholder is lost in astonishment at its magnificence and grandeur.

The others of the larger trees, some of which reach over 130 feet in height, represent the natural orders, Ebenaceæ, Mersinaceæ, Auranticaceæ, Saxifragaceæ, a species of Tetranthera, Lauranaceæ, and one or two others. The medium size are represented in the natural orders Apocynaceæ, Rhamnaceæ, Rutacea, Solanaceæ, Nyctogenaceæ, and Chinconaceæ. One of the latter when cut or broken, sends out such an abominable odour that it very appropriately rejoices in the local name of Stink tree. Legumanosæ—In a Dolichos sp., Guilendina, and Edwardsia sp., a very handsome tree. Orchidaceæ—Dendrobium sp., and Sarcothilus. Of the smaller kinds, shrubs and climbers—the Myrtaceæ already mentioned; Euphorbeaceæ in Bologhia and Omolanthus. Hoya, sp. Peperoma; Flagellaria, Ipomea, sp. Tecoma Australis; Smila-artifolia. A piper mysthicum, requiring only cultivation to bring it like the kava of the Friendly Islands; a wild jasmin, loading the air with its fragrance; and the pungent Crucifera ozothamnus, and its confrère, a little goodenia. Urticaceæ—a pomeria of which the Chinese grass cloth is made; didaceæ and crinum.

Palms are of five varieties. The Pandanus, of magnificent dimensions, rearing many heads to the height of fifty feet, the pendent roots covering an equal circumference with the heads, and over thirty feet. "This is the forky tree of the people." Areca, sp.: Thatch palm. Areca, sp.: Curly palm. This latter is recognised also by its slender stem. Seaforthia, sp.: Umbrella palm, high up in the mountain, and a small palm which is said to grow on the summit of Gower Mountain, of which no specimens of this latter were obtained.

Cryptogamia is well represented, although there are many absent which we had reasonable grounds for hoping we might have found. The species procured form an interesting collection, and are—Diplanium, Lytobrachia, Trichomanes, Davallia-dubia, Nephrolepis, Pteris tremula, Asplenium obtusatum, Polypodium tenellem, P. confluens, P. davallioids, P. regulosum, Neoptopteris nidus, Asplenum falcatum, Mahrattia, Allantodia, Alsophilla excelsa, A. Cooperii, Achrostichum alcicore, with one or two others. We searched, but did not find, Adiantum, Gleicheniæ, Nothoclinia, or Lindsea.

The natural history of the island at one time formed a more important subject of interest than it at present maintains. The remnant of its former feathered population is represented now by the brown hen, which has been driven to the mountains. The light coloured bird, like a guinea fowl, the large pigeons, and small parrots have become extinct. We shot, with but few exceptions, specimens of all the existing birds, which number over thirteen species.

Birds:—Stripera Graculina sp., fruit magpie; Chalcophaps sp., green dove; Ocydiomus sp., brown hen; Merula sp., blackbird; Pachycephala species, thickhood; Rhipidura sp., fantail or flycatchers; Zosterops sp., silver eye; Gerygone sp. (?), the smallest bird seen on the island; Halcyon sp., blue kingfisher; no specimen, only one seen; Limosa sp., godwit; Charadrius sp., golden plover; Hiaticula sp., dotterel; Phaeton sp., boatswain.

In Coleoptera were also secured thirty-six species, representing:—Carabidiæ, seven; Staphylinada, four; Heteromera, seven; Phytophaga, three; Lamellicoriis, two; Curculionidæ, two; Psilaphidæ, two; Telephorus, two; Longicornes, three; and a few others.

Land Shells.—Bulimus, probably two species; Helix, five species; Vitrini, one species; Omphilatropist, one species; Diplomatina species, and some others. Hundreds were found to be dead shells only—apparently dying out; a more diligent search gave a few of the live ones.

Arachnidians.—Epeira, Lycosa, and a couple of others. A small green spider, the bite of which is said to be very sharp for half-an-hour, was not seen.

Reptilia—is represented by three or four harmless lizards—one geeko, one hinulia, and another. Centipedes were said to be numerous and large; we, however, had some trouble to procure three or four small specimens; and in cutting out the dead logs for insects, the larvæ of longicornis were abundant, the pupæ of moths were greedily devouring the decaying leaves of crinum; and in some of the logs, phasmus were found—one of the most repulsive forms of insect life, of formidable appearance, four inches long, the male armed with lobster-like claws, and mandrills sufficiently hard to gnaw the half dead wood. The chirp of the cricket indicated their presence, grasshoppers revelled in the sun's rays, the wings and shells of the cicada bore out that they had sported their season, and the mosquitoes would not be denied their repast.

Geology.—There is nothing remarkable in the geological features of this island. At one time it appears to have been a chain of attols, linked together by the coral insects, having a vegetation and some land shells. The igneous action has upheaved the whole line of attols and madreporic rock to a considerable elevation at the south, and a moderate one at the north end of the island. The basaltic debris having floated over parts of the centre has made patches of exceeding rich soil; whilst in some instances the calcareous rock outcrops, and which, by exposure, has disintegrated, forming apparently a sandy soil.

Wells for water supply have been dug to some depth on the island. In sinking occasionally, argillaceous beds of fourteen feet in thickness have been cut through; these have been resting on a coral debris, and will retain no water; others which have been cut partly through the clay retain the water, but it is of considerable hardness on account of the lime.

Thursday, 3rd June, 1869.—The time having now arrived, and all our specimens collected on the beach opposite to the vessel, we bid

good bye to the people who had come see us off, and, together with our spoils, we were soon put on board again to await the first lull for a start homewards.

Friday, 4th.—We remained at anchor all last night, and at peep of day were underway with a moderate breeze.

Saturday, 5th.—The breeze holding favourable, though light, the fore part of the day, but the heave of the sea indicated a past or a coming gale. At noon the breeze was increasing, aad continued so the remainder of the day; at midnight the ship was labouring heavily, and going at slow speed, occasionally shipped heavy seas, completely washing the people out of the forecastle.

Sunday, 6th.—From the repeated assaults at 4 a.m. the Captain found it necessary to heave the ship to under a close reefed mainsail. The vessel behaved admirably under this treatment, and we remained so for about sixteen hours. During the day sights were obtained, as well as the meridian altitude, and which enabled Captain Hutton to get his position accurately, so that he could shape his course direct for Sydney lighthouse, and which he did with precision.

Sunday night, 6th.—Ship was again under steam, although at the first part the jumbling sea had not altogether subsided, yet we made fair progress till midnight, then our pace was considerably increased till morning, when at day dawn "Light oh," was announced, and we entered the Heads just before eight a.m., on Monday, the 7th June, 1869, after at least a satisfactory cruise to Lord Howe Island.

I am sure that Captain Hutton must have been very tired, having been wet through and exposed during the heavy weather. His constant care and solicitude for the safety of his vessel during the whole trip, and especially whilst at anchor under the island, deserve high encomiums.

E. S. Hill.

Woollahra, 8th June.

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The following is an appendix to Mr. Cloete's official report to the Government in regard to Lord Howe's Island:—

"Water Police Office,
"Sydney, 10th June, 1869.

"I do myself the honour to offer a few observations regarding Lord Howe's Island, which, though not actually connected with the mission on which I was dispatched, may yet be of some use to the Goverment. Lord Howe's Island is distant N.E. from Sydney about 450 miles, and its general features I found accurately described by Mr. White in his report of 1835, with the exception, however, of his statement as to the scarcity of water, for there are two good streams—one on each side of the island, and abundance of water to be almost everywhere obtained by sinking from ten to twenty feet.

"On the S.W. side, and about three-quarters of a mile from the

shore, a reef extends N.W. and S.E. about three miles. Over this, in westerly winds, there is a heavy break. There are three entrances, the one at the northernmost end leading to a small harbour, available for vessels drawing not more than six feet.

"On the outside of this reef there is anchorage and shelter from the N.E. winds, the best holding ground being in about nine fathoms, near to a small island, just outside and near the centre of the reef, and here also there is an opening through which to land.

"From the S.W. winds there is shelter and anchorage on the N.E. side, where the *Thetis* lay all the time we were there. Two or three small bays with sandy beaches afford very easy landing. The best watering is from a considerable stream about the centre of the N.E. side, in a small bay facing Mutton Bird Island.

"There are altogether thirty-five souls on Lord Howe's Island, occupying thirteen homesteads, and having under cultivation about thirty-three acres of land. The houses are built of the cabbage-palm, and covered with the cabbage-leaf. They are clean and comfortable. Two or three of the better class of buildings are of sawn timber, procured from Sydney, the wood on the island not being adapted for building purposes. These small settlements are all on the S.W. side, standing away from the beach from about fifty to two hundred yards. They are not observable from the sea being hidden by the woods which shelter them from the S.W. winds.

"The names, length of residence, and other particulars concerning the inhabitants of this island, I append in a tabular form, taking them in order of residence from north to south.

"The soil is decomposed trap and coral, and varies much in its quality; the spots now occupied being naturally the best selected, and producing very good crops.

"Potatoes, maize, onions, cabbages, oranges, lemons, bananas, peaches, grapes, arrowroot, and coffee, all thrive there exceedingly well, but the inhabitants care little to cultivate more than just sufficient for their wants. The only product they export is onions, which are brought to Sydney in a small ketch of about eighteen tons, the joint property of Field, Thompson, and Wainwright. The freight charged is £2 per ton, and the balance over this that the cargo brings is returned in tea, sugar, etc., luxuries, however, which they are often for a very long time without. After the season, whalers often touch to water and provision, when the people exchange their pigs, potatoes, onions, etc., for soap, salt, slop-made clothing, and any other articles they may require.

"The people all seemed quite happy and contented, and beyond the unfortunate affair which I investigated, I could hear of nothing having occurred for years past to disturb the monotony of their lives. Numbers of pigs and goats run wildly over the island. There is excellent fishing, and turkeys, ducks, fowls, etc., are reared in great numbers.

"The scenery on the island is very beautiful, the cabbage palm and magnificent banyan tree covering all the low lying parts. Some rare birds were procured for the museum by Mr. Masters; and Mr. Moore

has much enriched the Botanical Gardens by obtaining rare and valuable plants. The inquiry I held occupied nearly the whole of my time, and consequently I had no opportunity of accompanying any of the gentlemen with me in their scientific researches, and I did not care to remain any longer than was absolutely necessary by reason of the heavy weather to be expected at this time of the year, which would make our anchorage insecure, and further, also, on account of the limited quantity of coal we were enabled to carry.

"On our way back we encountered a very heavy S.W. gale, about one hundred and eighty miles from Sydney. We were hove to for sixteen hours, and the Government steamer *Thetis* had thus an opportunity of proving her almost perfect seagoing capacity.

"I have the honour to be, Sir,

"Your most obedient servant,

"P. L. CLOETE, W.P.M."

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Record of the inhabitants of Lord Howe's Island, taken in order of residence, from north to south, by Peter Laurence Cloete, Water Police Magistrate, of Sydney, on June 2nd, 1869.

| Names, etc. | Number of years resident on the Island. | Area under Cultivation. |
|---|---|---|
| William Henry Field and wife | 12 years | 4 acres |
| Nathan Charles Thompson, wife, and two children | 14 ditto | 6 ditto |
| Mrs. Leonard | 5 ditto | 3 ditto |
| David Lloyd and wife | 10 ditto | 3 ditto |
| Mrs. Andrews | 25 ditto | 1 acre |
| Thomas Mooney, wife, and child | 15 months | 2 acres |
| Mrs. Nichols and three children (husband late master of *Aladdin*, away whaling as mate in the *Robert Towns*) | born on island | 2 ditto |
| John Lewis and wife | 3½ years | 2 ditto |
| William Osborne Spirling (wife and children in Sydney) | 8½ ditto | 2 ditto |
| Allen Isaac Moseley and wife | 23 ditto | 3 ditto |
| Henry Wainwright and wife | 2½ ditto | 3 ditto |
| Mrs. Whybrow and four children, one daughter married (husband mate of *Fanny Fisher*, away whaling) | 2 ditto | 2 ditto |
| Perry Johnson and wife | 11 ditto | 2 ditto |
| William Nichols (residing with Mrs. Nichols) | 6 ditto | 1 acre at North Bay |

Edward King, in the employ of Whybrows; Campbell Stevens, a young man lately arrived from Sydney; and a Maori woman living at Thompson's.

P. L. CLOETE, W.P.M.

## Improved Communication with France.

There are not many of our readers, we fancy, who have not, at some period or another of their lives, crossed the Dover Strait to France, and it is likely enough that a fair proportion of those who have not were deterred from doing so only by the apprehended discomfort of the passage. Neptune seldom offers his attractions in narrow places, nor are the advantages he confers upon mankind very obvious in parts in which his operations are conducted upon a small scale. We have heard nautical men whose lives have been spent upon the broad Atlantic declare that no voyage has inflicted on them such uneasiness as one of an hour or two's duration across the Strait. The short, chopping sea produces an unsteadying effect upon the nervous system, which even old tars, until accustomed to them, find extremely disagreeable; and it is relatively an unfrequent occurrence for the water between Dover and Calais, or Folkeston and Boulogne, to be smooth enough to be crossed by the infirm without temporary distress. There is no room to doubt that the conversion of the Straits into dry land whatever else might result from it, would be followed by an immense increase of intercourse between the British people and the various peoples of the Continent, and also by an indefinite expansion of commerce. For when we talk of improved communication with France, we mean, of course, improved communication with most of the Continental States.

It is admitted on all hands, we believe, that there is room for improvement. The means of transit between England and France are by no means up to the level of locomotive accommodation in the present day, even when the necessary allowance has been made for the difficulties it presents. Neither for passengers nor for goods has science done what it might reasonably have been expected to do in providing facilities for their safe and regular transportation; and in one respect the deficiency affects us more injuriously than it does the French people. They are exposed to its evils only so far as their dealings with us are concerned. We are doomed to encounter them not merely in our intercourse and business with France, but with most of the countries beyond France, and towards which it offers us the directest highway. It might, therefore, be expected of English engineers that they should apply themselves in earnest to minimise the existing impediments to travel and traffic between the two countries. These impediments consist of the break of line between coast and coast, and the necessary transference of both passengers and goods from land-carriage to sea-carriage, and back again; the dread and the distress of sea-sickness; and the loss of time on both sides by embarkation, disembarkation, and, to a large number of persons, custom-house regulations. Endless complaints have been made against each of these kinds of obstruction; but very little indeed has been done, or even attempted, for their removal. True, we have been amused ever and anon by gigantic, and we may say romantic, projects of bridging

the Strait; but they seemed much better fitted to illustrate the daring of civil engineers than to provide a feasible remedy for the disadvantages endured.

At length a scheme in outline has been laid before the public which promises to put the desideratum within our reach at a moderate risk and cost. Of course, we do not refer to the proposal to drive a tunnel beneath the bed of the sea from England to France, nor to that which, at the expense of about thirty millions sterling, would carry a line across the Strait upon 190 towers at a height of 500 feet above the sea level. We do not doubt that modern science is equal to either of these feats, but we seriously question whether they could ever pay the cost of their construction, and, still more, whether capitalists would ever have faith enough to subscribe the indispensable wherewithal. We dismiss them from consideration, therefore, as, in a commercial sense, impracticable. The scheme to which we allude as a hopeful one is that of Mr. John Fowler. The main features of it may be described in few words. It is designed to carry an unbroken line of communication between shore and shore, not above, or beneath, but upon, the sea, by means of "large ferry-boats, of 450 feet in length and proportionate breadth, drawing about twelve feet of water, which, from their size and form, will be nearly free from all tossing and rolling in the heaviest Channel seas." Between the upper and main decks of these boats an entire train of carriages would pass from and to the lines of railway, without making it necessary for the passengers to alight from them, unless they should prefer to avail themselves of the accommodation of "well-lighted, and well-warmed saloons, with means of reading, writing, etc., which will make the sea voyage the most agreeable part of the journey." Under the main-deck goods-trucks are to be carried, the weight of which will serve as ballast to the vessel, and increase its steadiness. The passage (say from Dover to Andresselles) will be made in an hour, and the transfer of the carriages between the railway and the boats on each side of the Strait will be effected within five minutes by hydraulic apparatus. The great recommendations of this project are that it will not require an enormous outlay; that it may be made fully available for its purpose within two years; and that it will reduce to the merest trifle, even if it do not altogether get rid of, the usual annoyances and perils of a sea passage. Preliminary steps, we understand, are already in progress for ascertaining what point of the French coast offers the most advantageous site for a landing-port, and there seems to be a strong probability that the enterprise will be carried into effect.

Now, without pronouncing any positive judgment on this scheme, and taking no other interest in it than that which arises from our desire for improved communication with the Continent by way of France, we hope we may be allowed to glance at one or two of those reasons which should induce men anxious for the progress of enlightened views, at home as well as abroad, to give their countenance to the object at which it professes to aim. Englishmen, we hope, will get, as well as impart, much benefit from a closer connection and a

more frequent and habitual intercourse with other European peoples. It cannot be denied that our countrymen are deprived of many sources of refined enjoyment by their insularity. The pleasure of life, so far as it can be ministered to by passing good, depends very much upon social manners. The amount of it that we lose in consequence of our national shyness and reticence with strangers, if it could be measured, would probably surprise us by its magnitude. Anything that unduly limits our sympathies, and increases the difficulties of social intercommunion, destroys to the same extent our means of profitable gratification. There are not a few senses in which cosmopolitan views and affections enlarge men's capacity both for enjoyment and usefulness; and there are certain angularities of character arising out of an excess of individuality which Englishmen might part with to their own advantage and that of others.

This, however, is but a small part of the gain likely to be derived from such an improvement of our means of communication with the Continent as that anticipated in the preceding paragraphs. It would be one of the most powerful stimulants that could be applied to the expansion of commerce. After all, our trade with France, with Germany, with Russia, and with central Europe is nothing like what it might be, nor what it most probably would be, were the Channel practically bridged over. Hostile tariffs have done something towards restoring it; but hostile tariffs have done something towards restricting it; and hostile tariffs seldom survive long the practical obliteration of what we may call frontier impediments. Where peoples mingle with each other as freely as though they were inhabitants of the same country, custom-house prohibitions and obstructions necessarily tend to give way. It has been so in the past; it will be even more so in the future. And this is much to be desired, not merely for the increase of commerce, but as a guarantee for the preservation of peace. Every additional customer is an additional pledge against a resort to war. Commerce is antagonistic to "the game of kings." The time, we trust, is not far distant when war between France and England will be as difficult, and therefore as improbable, as war between England and Scotland; and when France and England are cordially agreed the peace of Europe cannot be easily broken. The subject we have had before us has, therefore, its moral as well as its material side; and the moral interests which it may affect are even greater than the material.—*Illustrated London News.*

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## About Mauritius Hurricanes, Time-balls, and Transit Instruments.

Mr. Editor,—Dear Sir,—I am sorry to trouble you again, but being disappointed by our fair wind failing to carry us to our journey's end, and a fine day coming, I was at a loss how to pass the time, but

in rolling up my charts I have come across one of the Indian Ocean, with the track of the Mauritius hurricane of March 11th, 12th, and 13th, 1868, marked on it, although I had particulars from different captains who had been in it, I could not get a look at the log books, as they were all on shore, at the Meteorological Department. There I expected to have readily obtained a report, as taken from all the said log books. But I was disappointed, for I have seen none as yet.

Well, having a gentleman passenger with me, who was as much disappointed at the wind failing us as I was myself, I got him to lend me a hand to draw out a chart of the track, as taken from my chart and note book. This I send for your inspection. The passage of the centre, being marked on it, you will see that it passed about thirty miles to the north of Mauritius, where it commenced to recurve to S.E., and passed right over the centre of Bourbon. This part is taken from the reports of the two observatories, the anterior progression from 65° E. towards Mauritius and Bourlon is what I got from the captains of the ships, *Resolu* and *Clementine* (both French ships), *Coquetdale* and *Carn Tual*. The *Resolu* was not so seriously damaged; the *Clementine*, having to put to sea from the Bell Buoy, ran right into the centre of it and was totally dismasted besides receiving other damages. The *Coquetdale* got out of it with the loss of all her sails: the *Carn Tual* was totally dismasted, decks swept clean, but having an iron hull it did not receive any damage, although everything in the shape of wood work was washed away. Even the wood moulding she had on, a narrow painted stick, was torn off. I don't think any wooden ship could have lived under the same kind of treatment, and to help matters to worse, she had a cargo of iron in for Bombay. I never passed her in my boat, but I used to look at her and wonder how she had managed to live through it, such a wreck she was. The track, after leaving Bourbon is taken from the reports of the *Talca*, *B. B. Green*, and *Sea Belle;* owing to the distance they were from it, they did not receive such severe treatment as the others, and from the way they had the winds I draw the conclusion of the centre passing betwixt *Talca* and *B. B. Green*. I had the good fortune to be in about lat. 38° S. long. 40 E., where we escaped everything but the sea, which was something fearful at times.

Now, Mr. Editor, I am sorry to trouble you with any questions of mine, but I really should like to know what use is made of all the observations that are taken at the different observatories for the Meteorological Department? I have not been able to find any of them yet outside of the *Nautical*. I have always thought that a great many of them were made for the good of science. But I think that the scientific few keep them all to themselves. I hope that they are not afraid of enlightening the darkness of their less informed brethren.

We all know that a better place could not be found for observation of these phenomena than Mauritius: yet of all the observations made there and the accounts taken from ships' log books, I only see two places in the *Nautical* for 1861, where anything is mentioned, and one is a letter of enquiry, and the other I see you have had to be

beholden to a local newspaper for. Now I know they have an observatory there and a time-ball on the signal mountain.

But what is the use of either to the ships that go there. The observatory is of no use to the shipping further than depriving every English ship of her log book during her stay in port, and you have to go and seek it yourself when getting ready for sea! and the time-ball, to my certain knowledge, has not been worked for two years, and if I were to believe the report of others, it is twice two since it was at work. The time is given now by dropping a flag,—on some days you get it, and on others you don't. I managed to get time on seven occasions in three weeks, which was as often as the flag was dropped during my stay in port. I know that they have had a transit instrument there this last three or four years, but it is not in its place yet, and I don't think it ever will be placed, unless there is some one that understands what it is for, and will take it in hand. I can't believe that it will take such a time to get it into position if they thoroughly understand it at the observatory.

Now, Mr. Editor, perhaps you may have heard whether there is any particular difficulty, or not, in the way of getting the instrument into its place; or whether there is any particular reason why none of the accounts taken from the ships' log books are made public. If so, I hope you will enlighten my ignorance of the matter, and mention in some of your future numbers where I can get any information on the subject, or where any books may be had with any accounts in them, as coming from the Mauritius Observatory, concerning their hurricanes. I think a few reports of the different hurricanes would be very beneficial for those that have to traverse the Indian Ocean. It is not every one that understands all about the law of storms. I hope you will excuse me for passing my license time so.

I remain, yours truly,

CALEB QUOTEM.

*To the Editor of the Nautical Magazine.*

[Our Correspondent has done a good turn to his brother ship-masters in reporting the discontinuance of the time signal at the Mauritius. We trust that his representation will lead to the subject being looked into. And we may also observe that it would be but a proper return for reference to the logs so frequently obtained for use at the Mauritius from shipping, if an account of particular hurricanes as they occur, after the tracks of hurricanes are thus laid down on a chart, were presented gratis to the captains of ships calling there. This would go far towards increasing the desire for instruction in the hurricane theory, and would be but a gracious acknowledgment of the contributions of their logs. Some (at least one hundred) copies might be printed of the course of each hurricane, and any captain asking for it should receive one. This would be but a small expense compared with the good it would do.—ED.]

# Nautical Notices.

## Particulars of Lights Recently Established.

(Continued from page 107.)

| Name. | Place. | Position. | F. or R. | Ht. in Ft. | Dist seen Mls | [Remarks, etc. Bearings Magnetic.] |
|---|---|---|---|---|---|---|
| 11. Santa Cruz Point | California | N. America | F. | 67 | 14 | Est. 1st January, 1870. See Notice No. 11. |
| 12. Off Gio and GidskoSds. | Erkna, Norway | 62° 33·3′ N. 5° 56·3′ E. | F. | 160 | 11 | Est. 8th April to 25th Jan. *Red.* |
| | Synœs | 62° 32·5′ N. 6° 1′ E. | F. | 30 | 11 | ,, ,, |
| | Alnœs | 62° 30′ N. 5° 28·3′ E. | F. | 30 | 9 | ,, ,, |
| 13. Ionian Sea | Lights & B. | uncertain | ... | ... | ... | Guardiana Lt. and C. Monda Buoy |
| 14. Gutzlaff Is. | E. Yang-tse | China | F. | 270 | 20 | Est. 1st November, 1869. |
| 15. Sturgeon Pt. | Lake Huron | N. America | F. | 69 | 14 | Est. to begin in Spring of 1870. |
| Rose Island S.E. Point | Naraganset Point | N. America | F. | 50 | 12 | Est. 20th January, 1870. |
| 16. Sandy Cape | Queensland | Australia | R. | 385 | 26 | ? Jan., 1870. See Notice No. 16. |
| Port Denison | Queensland | Australia | ... | ... | ... | North Channel. Silting up. |
| 17. Vingorla Roads | Hindostan | W. Coast | F. | 250 | 9 | Est. 1st Dec., 1869. Two; 20 feet apart. |
| 18. Strijen Sas | North Sea | Holland | ... | ... | ... | Alteration. See Notice No. 18. |
| 19. Montroseness | Scotland | East Coast | F. | 124 | 17 | Est. 1st March, 1870. |
| 20. Para River Entrance | Brazil | ... ... ... | ... | ... | ... | Light temporarily removed. |
| 21. Gt. Inagua I. S.W. Point | W. Indies | Bahamas | R. | 120 | 17 | Est. 1st April, 1870. About once a minute. See Notice No. 21. |
| 22. Rock Island Simoda | Japan | E. C. Nipon | F. | 80 | 14 | Temporarily in 34° 34·3′ N., 138° 57·3′ E. |
| 23. Sumaya | Spain | North Coast | F. | 135 | 9 | Est. 15th Jan., 1870. See Notice 23 |
| Poros Island | Mediterran. | 37° 31·7′ N. | F. | 96 | 13 | Est. 12th January, 1870. |
| N. shore | Morea | 23° 25·7′ E. | | | | |

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

No. 11.—The tower 42 feet high rises from the keeper's dwelling, both being white; the building is 100 yards from the extremity of the bluff point, and its position in lat. 36° 57′ 0″ N., long. 122° 0′ 32″ West from Greenwich. From the lighthouse, Pinos point bears S.S.E. ½ E. 19¾ miles, and Sanquil point E. by N. ¾ N. 2 miles. From the northward the light will be first seen when bearing E. ¾ N.

*Variation* 15½° *Easterly in* 1870.

No. 16.—The tower is 97 feet high, and is painted white.

Note.—Vessels should not attempt to make the light on a southerly

bearing except in very fine weather. Also, that due notice will be given of the date of the exhibition of the light, and the necessary directions published for its use in rounding Breaksea spit.

Also, that the North channel, Port Denison, has silted up 2 feet, there being now only 14 feet at low water springs, instead of 16 feet, as formerly. The South channel still retains a depth of 22 feet.

No. 18*a*.—The Netherlands Government has given notice, that an alteration has been made in Strijen Sas light; and that it now shows *red* in the direction of the second red buoy of Overslag. A vessel steering eastward, the edge of the sector of light which remains white will lead about 1⅛ cables from the red buoy of Moerdijk bank.

No. 18*b*.—The Danish Government has given Notice, that a sunken wreck, with mast above water, lies between the Scaw and Hirtzshals on the coast of Jutland, in 9½ fathoms, with the Scaw lighthouse bearing E. ¾ N. distant 10 miles. A green flag is affixed to one of the masts.

[*All Bearings are Magnetic. Variation* 15° *Westerly in* 1870.]

No. 19.—Visible between the bearings S.W. ¼ S. round by west and north to the land, elevated about 124 feet above the level of high water, and in clear weather should be seen from a distance of 17 miles. A light of less power will be shown from the same lantern up the channel, towards Montrose harbour.

[*All Bearings are Magnetic. Variation* 23¼° *Westerly in* 1870.]

No. 21.—It stands at the sea margin about one mile southward of Mathew Town and two miles northwest from Southwest point, in lat. 20° 56′ N., long. 73° 40′ 45″ west from Greenwich.

NOTE.—Vessels approaching this light are cautioned to pay careful attention to its bearing, as it will be seen over the land where not intercepted by objects. Also, that further information will be given as to the date of exhibition.

No. 23.—Sumaya is about 12 miles to the westward of San Sebastian, and the light tower is situated on Mount Atalaza, about 140 yards from the shore, in lat. 43° 18·7′ N., long. 2° 15·5′ W. from Greenwich.

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## A LOST COMMANDER OF A BRITISH MERCHANT SHIP.

WITH the view of assisting in the object expressed in the following we print these extracts:—

"Since my arrival here, I have had two or three letters from a Mr. Webb in Manchester, in reference to one of the Englishmen on Pleasant Island, who he thinks might be his father. Perhaps you may find a corner in the *Nautical* for some of them, and some of the readers of the *Nautical* may be passing through amongst the Islands and may make enquiries about him, as the name of the ship and other particulars are mentioned in one of them. I have written to him to say that I don't think any of them I saw, had ever been Captain of a ship. The paper I enclosed you from them just says, 'To Newcastle Shipping touching at Pleasant Island, We the undermentioned will undertake to supply them with hogs and cocoa-nut oil, and they must

pass round the west side of the island, as there is an eddy off the east end of it.' Their names are at the foot of it. Such are the contents of the paper.* I remain, yours truly,

"WM. HALL.

"*To the Editor of the Nautical Magazine.*"

"Ancoats, Manchester.

"I see from the papers that you met with an Englishman on 'Pleasant Island,' when going from Australia to China last year. I should feel much obliged to you if you would give me all the information you possibly can about him, description of man, etc. My father was a sea captain and was lost out there in 1842, *left on an island* and not heard of since, and it is just possible the person you have met with may be him. I had hoped to have had an interview with you had you come on to Liverpool. Please write me per return of post to say if you are coming anywhere near Manchester, and I will try to see you. I am, yours truly,

"P. H. WEBB.

"CAPT. HALL, barque *Glenisla*."

"Ancoats, Manchester.

"Your note is to hand for which I am much obliged. My father was captain of the *Martha Ridyway*, and sailed from Liverpool for New Zealand in November, 1841, arrived there safely, and then left New Zealand for Bombay, and was wrecked in Torres Straits in July, 1842. When the ship struck on the reef which was under water, they all left her to go to some land distant about seven miles from the ship. Father got to the land with his boat, and then stayed on the land with the steward for company, and sent his boat back to help the others in, night came on and the current carried the boats away, and when daylight came they could not see ship or land, and were picked up after being out seven days, and came home with this report and say they left father and the steward on this land. Father's name was Henry P. Webb, of Frodsham, Cheshire, was a stout little man, sandy whiskers, and if alive would now be fifty-nine years of age. I shall be glad to hear from you again before leaving Bristol. If you pass Pleasant Island again please make some further enquiries. I am, yours respectfully,

"P. H. WEBB.

"CAPT. HALL, barque *Glenisla*."

The foregoing letters contain all the information we have received on the subject of this enquiry, and in reference to the lost individual, Captain Henry P. Webb, we do not think there can be any likelihood of his finding his way to Pleasant Island, for reasons which will appear in the sequel.

* We alluded to this paper in a foot note at page 2 of our January number.

In our volume for 1844 the position of the wrecked ship *Martha Ridgway* is incidentally alluded to in page 538, as lying thrown up on the Barrier reef, "bearing three miles south from the Nimrod passage." The same ship no doubt as commanded by Captain Webb—and we find in the Sheet No. 5 of the Pacific Ocean, No. 2463 of the Admiralty Catalogue, a wreck actually marked in that position. This may very possibly have been meant for the same ship. However, the distance of her wreck from the nearest land is more like thirty miles (and that is the Australian shore) than seven miles. And we do not think it likely that Captain Webb would have found his way to Pleasant isle, this being 2000 miles away, and a great labyrinth of islands (New Guinea among them) being in the way. It is far more likely that he found his way to the Australian shore, about Cape Grenville and Cape York, for in those early days, we believe that placing provisions on Raine island was but just thought of, for the beacon was only then intended. A sketch of it as then proposed appears in page 527, but the solid lighthouse beacon was not erected for some time afterwards. Whether the wreck remains in its old position or not, we cannot say, but it is most probably gone to pieces. And it is very likely that the wreck of the *Martha Ridgway* contributed to the beacon being erected by the late Captain H. P. Blackwood.

Considering the place of this wreck, we deem it more probable that if the crew of the *Martha Ridgway* were really picked up by a passing vessel going north, they would therefore be carried on through Torres Strait, and *ought* to have been heard of afterwards.

It is curious that we have not only traced the *Martha Ridgway* in our own pages, but that at the place where she was lost the term wreck is marked on the chart—at least the Admiralty chart in our possession—leaving no doubt in our mind that it was meant for the *Martha Ridgway*—although in those days, before the Raine Island passage was much known, wrecks on the Barrier reef were very frequent.

We shall be very glad indeed if the publicity which the loss of Captain Webb will acquire, through these pages, should lead to the discovery of any particulars respecting his subsequent fate. But that his ship was lost on the Barrier reef close to the south of Raine Island, is thus certainly established, as she lay there in the early part of 1844. But we much fear that from the time that has elapsed since, but little hope can be entertained of hearing more of either captain or crew.

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## FORBES'S SCHOONER RIG.

[In reference to this subject we have been favoured with the following from the inventor, and insert it to show how much the system is approved on the coast of the United States.]

Boston, 10th January, 1870.

SIR,—I mail for you a little pamphlet illustrating my new rig for

fore and aft vessels, or for Barkentines, whereby I expect to save in the first cost, as well ss in wear and tear of men and cargo. In short, I look upon this rig as a *benevolent life-saving institution*, especially for the large three-masted schooners, now so common on our great lakes, and on our coasts, and also in foreign trade. They range from 400 to 800 tons. I was alongside of two yesterday, one of 540 tons from Liverpool, drawing seventeen feet of water, navigated by *ten men, all told*, and one from New Orleans over 600 tons, having only Captain, two mates, cook, and four souls before the mast!

To the Captain of the latter I showed a pencil sketch of the rig, and requested him to study and report on it during the voyage he was then about to commence. I asked him on his return if he had thought about it, he answered, "only once." "How is that," said I. "Only once, and that was all the time," he replied. In your country, where most of the coasters have their canvas already much cut up, and where you have no large three-masted sailing schooners, the rig would probably not be appreciated. But for steamers, and especially for those going through the Suez Canal, I think it would be very economical and effective. In steamers, the amount of canvas should depend mainly on the trade they might be intended for: passenger ships would naturally have full steam and auxiliary sail, cargo ships full sail and auxiliary steam. Some traders and war vessels should have full steam and full sail also.

I leave you to notice the rig or not at your discretion.

I am, yours,

R. B. FORBES.

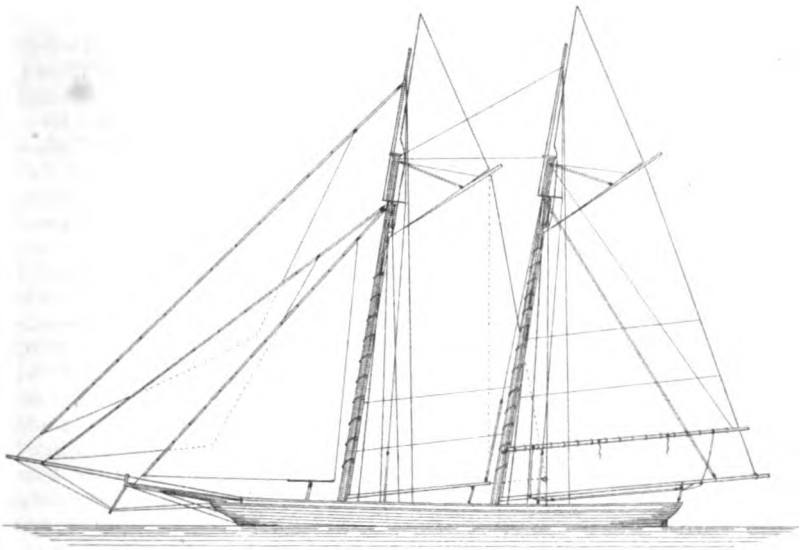
[The rig alluded to for schooners will be found in our last number. —ED.]

[On the same subject as the foregoing, a letter from one of our yacht sailors has just come to hand, on which we should be obliged by the opinion of Mr. Forbes before we add a remark of our own.—ED. *N.M.*]

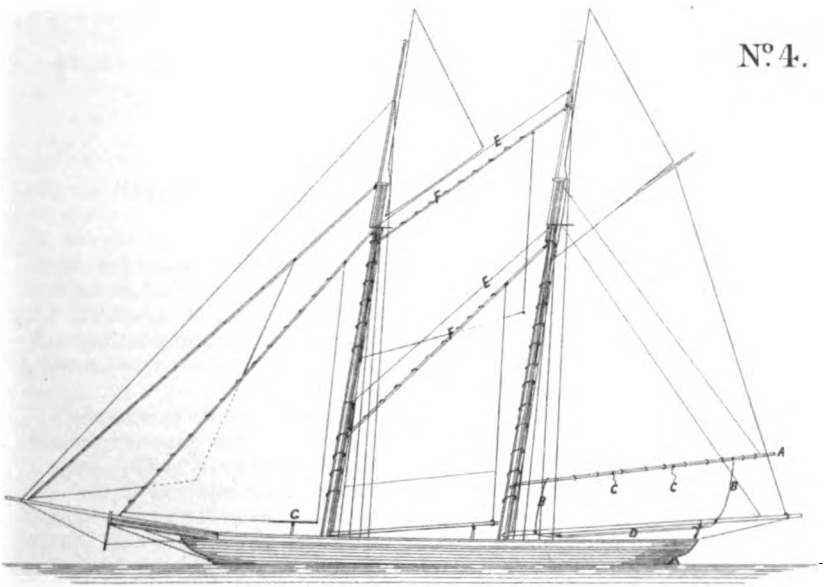
ABBERLEY, STOURPORT, 22nd FEB., 1870.

SIR,—It appears to be a question how far Mr. Forbes's method of rigging schooners will apply to small craft, or meet their requirements. Their needs for improvement are very great. We see them compelled by the present system of reef to roll up one half of their canvas uselessly along the boom and to reduce sail with great difficulty and inconvenience at the very time when they need rapidity in the operation, and additional strength to the canvas. Perhaps some of the scientific contributors to your excellent Magazine might work out the suggestion which often crossed my mind since I was caught, some four years ago, in a severe gale among the New Hebrides, in the South Pacific. It was but a small schooner of sixteen tons, and I had recourse to the usual hurricane reef, just a small triangle with its apex turned mastwards; but the trouble to effect this, when hurried by a darkbank to windward of ominous looking clouds glistening with the

Nº 3.



Nº 4.




R.B. FORBES'S SCHOONER RIG.

Malby & Sons, lith.

fierce teeth of the breaking sea, was a practical demonstration, which I shall never forget, of the manner in which so many small craft are lost at sea.

Can no plan be adopted by which the main and fore-sails may be folded down instantly from one angle to its opposite, so as to double the thickness of the canvas in the act of reducing? The chief objection to such a scheme, viz.: that the sails would necessarily have to be triced up at their corners, and consequently would never set tight, is perhaps not so insurmountable as it would appear. In lieu of the present yielding bolt-ropes and clew-lines we might have them of unyielding chain, carefully parcelled; and these, holding out the extreme corner of the sail against the peek and carried along the gaff, would surely make as good a head to a sail of a less height, as the present plan with its great belly in mid-sail; and there seems no reason why the top-sails should not be increased in proportion as these are dwarfed? Might not these lower sails be of the form of a rhombus with the base alone bent on the boom,—the clew-lines and down-hauls so arranged that the head corners could be folded diagonally, while the main-sail have a further triangle reaching to the end of the boom, which in like manner could be hauled in when occasion requires. The changes in the form of the sail arising from this kind of angular reef would, I am confident, be appreciated. Our countless small craft sadly need some attention paid to them, considering the numbers that are lost in the sharp squalls along our coasts.

I am, Sir, yours, J. KEIR MOILLIET.

*To the Editor of the Nautical Magazine.*

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## REVIEW OF SOME NAUTICAL TOPICS OF THE DAY.

As we saw in our February number, H.M.S. *Monarch* was waiting for some favourable weather to start on her voyage, with the remains of the benefactor of the London poor, Mr. Peabody. In company with the American ship of war *Plymouth*, she made good her passage to Portland in America, and her arrival was thus announced in the daily papers:—

Portland, January 30th.

The remains of Mr. Peabody were formally delivered to the United States yesterday and transferred from the *Monarch* to the steamer *Leyden*. They were then landed and borne by ten British seamen to the funeral car, the band of the *Monarch* playing a dirge. Captain Commerell, in delivering the remains to Mr. Chamberlain, Governor of Maine, said they were intrusted to his care by Mr. Motley, the United States Minister in London, and that the British Government gave him orders to show in every possible way the respect and admiration felt by the Queen and people of Great Britain for the distinguished philanthropist, whose venerated remains Great Britain now parted with, but

whose memory would ever be retained and cherished, while the suffering artisan, widow, and orphan, on both sides of the Atlantic, would henceforth bless the name of Peabody. Mr. Chamberlain replied that the American people gratefully appreciated the national courtesy of Great Britain, and the tenderness with which Queen Victoria had restored the venerated remains of Mr. Peabody to his native country. The *Monarch*, he added, had achieved a greater victory than her guns could ever win.

The funeral car, guarded by British marines, and followed by relatives and mourners, and by Governor Chamberlain, Captain Commerell, Admiral Farragut, the Maine Legislature in a body, several State and Municipal deputations, Mr. Murray, the British Consul, and the officers of the British and American fleets, proceeded to the City Hall, where the remains were laid in state.

The subject however is of too interesting a nature to part with it thus, and we must add moreover some other particulars of an event not likely to recur, for that assuredly will ever stand *per se*.

We learn that the *New York Tribune* publishes long accounts of the arrival of the *Monarch* and *Plymouth*, at Portland, with the remains of Mr. Peabody, and of the ceremonies which followed.

The voyage of the two ships is thus described :—"The funeral fleet has had a prosperous passage, with some severe gales, but none severe enough to test very dangerously the sea-going qualities of either vessel. Off Ushant they parted company in a storm, and did not meet again until they reached Madeira, which had been appointed for their coaling station. There the United States steam corvette *Plymouth* awaited her consort at Funchal for several days, until stress of weather drove her to seek a more secure anchorage on the other side of the island, and there she found the *Monarch* already arrived. From Madeira to Portland the two ships were almost side by side. The *Plymouth* went into Bermuda to get the mails and orders, but the *Monarch* did not, and coal was replenished only at Madeira. Most of the voyage was made under sail.

"As they approached the latitude of New York, continuous thick weather prevented their taking any observations, and thus it was that they found themselves last Sunday off Montauk Point. The *Plymouth* hailed the steamer which afterwards reported her at Philadelphia. As the two ships sailed all the way with flags at half mast, it must have been known who they were, but the Philadelphian refused to stop long enough even to give the bearings, and his hail to Captain Macombe's hail could not be made out. The *Plymouth* fired a shot which only accelerated his departure, but the *Monarch* was behind, and opening her turrets gave him a shot across the bow, which caused him to send a boat aboard.

"The American officers speak in the most enthusiastic terms of the sea-going qualities of the *Monarch*, and evidently believe that there is no vessel like her afloat. She hardly reeled in the heaviest seas. 'Why, I believe,' said Captain Macombe, 'that she could use her guns in anything short of a gale of wind. She could bring her turrets into

action when the sea was so rough that I could not even exercise my guns. I never saw her do anything worse than lurch to leeward at an angle not greater than twenty degrees, and she would not have done that if she had not been under sail.' She made with ease 200 miles a day with sails alone. Speed and steadiness are two of her greatest points. She is inferior to our monitors chiefly in her heavy draught and height out of water, which presents, of course, a greater vulnerable surface. Her interior fittings are of the most magnificent description for an ironclad, and far superior, for instance, to those of vessels like the Franklin."

It is very gratifying to be enabled to add to this, that the officers of the *Monarch* are receiving those marks of attention (we might almost say attachment), which our cousins across the water know so well how to dispense.

The month just passed has dealt roughly with us. Frost unknown for years has been among us, blocking up our river, and of course victimizing those who would take liberties with it. Some sad wrecks we regret to say have been the consequence, and our life-boats have had ample opportunity for proving their value. But among the effects of the gales, an extraordinary event has arisen in no less than the loss of a lighthouse! But lighthouses on piles want a firmer foundation than they have. Here is the account, from the *Daily News* of February 21st, headed thus:—

"DESTRUCTION OF A LIGHTHOUSE.—On Saturday forenoon a pile lighthouse at Fleetwood was utterly destroyed by a vessel running against it. The schooner *Elizabeth and Jane*, of Preston, owner John Richardson Wharton, was nearing Fleetwood, heavily laden with pig iron, when she was borne by the current of the tide against the lighthouse piles, which snapped like matchwood. The head of the lighthouse, containing two men, fell on the deck of the schooner, the men narrowly escaping death. The scene on deck was one of indescribable confusion,—spars, cordage, sails, and ruins of lighthouse being all mingled together. The schooner on examination was found to be in a sinking condition from damage done to her hull by the broken piles. The accident was witnessed from Fleetwood, and a steamer was depatched to tug the schooner into the harbour, which was accomplished just in time to save her."

Happily this was no sea light, and the port of Fleetwood for which it was a mark both day and night we suppose must replace it if it is to be done. But to return to the weather, we seem to have had only neighbour's fare. One account says,—The recent heavy gales from the north-east have been attended with much damage, and in one case loss of life in the Metropolis. One result of the frost, which continues with unabated severity, is the appearance of floating masses of ice in the Thames, and this renders the navigation so difficult in the case of the river steamers that the traffic has been suspended until the weather moderates. The barges moored between London Bridge and the Commercial Docks have been frozen in. In some parts of London

the frost has cut off the water supply, while in others many deaths are attributed to the severe cold. A fearful sea has crossed the eastern coasts and the bleak shores of the German Ocean, and one of the most melancholy incidents of the gale is the wreck of the English barque *Victoria*, at Gorleston yesterday, with, it is feared, the loss of eighteen lives. This was on the 12th of February, and another, a week afterwards, says,—Accounts still continue to reach us of the extreme severity of the weather throughout Europe. In Danzig the theatre has, it is said, been closed on account of the excessive cold. In Italy frost and snow prevail, and the mortality in some places has been unusually high, owing to the exceptional temperature. The *North German Correspondent* says that as far as the eye can reach at Swinemünde the Baltic is covered with ice, and that some of the more adventurous skaters have crossed to Heringsdorf, a distance of several miles. In the Scheldt the masses of floating ice are of immense size —from thirty to forty yards in circumference—and all navigation is necessarily suspended. The storms on the coasts of Scotland continued yesterday, and it is stated that of the 1,100 feet of masonry comprising the breakwater at Wick, 350 feet have been swept away.

But space bids us be brief, and we must turn to other matters. Here are some particulars of that work of years, the great canal.

THE SUEZ CANAL.—PORT SAID, FEB. 1st.—The *Calypso* s., from Liverpool, drawing 17ft. 6in.; *Arrow*, s., from Penzance, drawing 9ft.; *Afrique*, s., from Marseilles, drawing 17ft. 6in.; and *Waverley*, from Liverpool, drawing 14ft., have arrived from here at Suez since Thursday last. The *Fire Queen*, s., from Liverpool, drawing 15ft. 6in., has just left for Suez; H.M.S. *Newport*, drawing 12ft., is surveying the Canal.

LIVERPOOL AND THE SUEZ CANAL.—The steam trade between the Mersey and Bombay, Calcutta, Colombo, and Madras, is rapidly assuming extensive proportions (writes our Liverpool corrospondent), and when the steamers which are now in course of construction, especially for trading on the Suez Canal, are completed the fleet will be one of the largest sailing out of the port of Liverpool. On Saturday, the screw steamer *Milbank* left the Mersey for Bombay, via the Suez Canal, and will be immediately followed by the *Bolivian*, *Ismailia*, *Alice*, and *Historian*, for Bombay; the *Cordova*, for Calcutta; and the *Statesman*, for Colombo, Madras, and Bombay.

A telegram from M. de Lesseps states that the minimum depth of the Suez Canal is now nineteen feet, and that this is over the rock at Serapeum. The rock will be removed before the end of this month, and then the minimum depth will be at a spot near Suez. It will range from twenty-three feet to twenty-seven feet, according to the height of the sea.

TRANSIT DUES.—The Suez Canal Canal Company have decided on charging the dues on vessels using the Canal on the nett, instead of on the gross tonnage, as heretofore.

MANCHESTER SHIP NAVIGATION.—Considerable interest has been excited for some time past respecting this subject, and it appears that the conclusion at which practical men who have fairly considered the matter have arrived is, that the proposed plan is quite practicable, and it is said Manchester and other capitalists are prepared, if the Mersey and Irwell Navigation proprietors are willing to give their earnest co-operation, to contribute funds in order to advance the undertaking. It appears that the partial success of the Suez Canal has given a fresh impulse to navigation enterprise, and it is said the shipping interests conceive that if vessels, of a similar class to those which will be able to navigate the Suez Canal could be brought up to Manchester, it would accomplish a vast saving in time and outlay, and greatly stimulate the trade of the district. The cost of such an undertaking would doubtless be large, but it is believed the advantages would be more than commensurate with the expenditure, and would greatly enhance the value of property in Manchester and the adjacent districts. By the completion of this measure the thorough drainage of Manchester, Salford, and the districts adjacent to the Mersey and Irwell Navigation would be an easy accomplishment, and the injurious flooding of these rivers entirely obviated. A survey is proceeding, it is stated, under the direction of Mr. Hamilton Fulton, the engineer who has been connected with the execution of works of a like character to those on the proposed navigation, and upon the result of his investigation will much depend the progress of the undertaking.

Turning to our own matters, a letter we have printed on the "Provision grievances of our Merchant seamen," asks for consideration in our present number. The remedy proposed by the writer is to have inspectors appointed at our ports, of sailors' provisions. It is a reiteration of former similar complaints in our January and February numbers of last year. The writers say there is no class of people in Great Britain so much neglected as our Merchant seamen, and none are left so entirely to the mercy of *employers* as poor Jack. But we commend the whole letter from page 135 to page 139 of this number to the attention of some Member of Parliament, who will take up the subject and see that justice is done between our Merchant seamen and their employers in the way of provisions. The food supplied seems to be such as to be a disgrace to the country. The limejuice was not limejuice until the employers were forced to remedy it. But the causes which render this anti-scorbutic necessary still remain in the shape of bad provisions, which are refused; for even coolie ships, convicts, emigrants, and even emancipated slaves have the advantage of their provisions being inspected. But the Merchant seaman is left to the tender mercies of his employer—the result of which has been and ever will be, that misery called scurvy. This is a state of things which, if it be not remedied, will require our Merchant ships to be manned with foreigners! for English sailors will very properly leave them. In fact, our country is disgraced by this state of things wherever they go.

Verily, the matter seems to be a very simple one, and we trust that the request made for the required inspection will be granted, and that

we shall not have to cite instances why certain persons will make money at the expense of our sailors' health and appetites. They will not be long wanting.

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## NEW BOOKS.

ARITHMETIC, THEORETICAL AND PRACTICAL, *adapted for the use of Colleges and Schools. By W. H. Girdlestone, M.A., of Christ College, Cambridge. London: Rivington*, 1870.

REVOLUTION in favour of improvement seems to be the order of the day. Art and Science have lent their aid towards enabling us to reach perfection, and we are doing our best to attain that end in various departments, not excepting even our right arm in war, the Royal Navy, and even the ships of the Merchant—for the former heavy guns are responsible, and for the latter the talismanic word economy. But we have here before us Science itself undergoing the ordeal in the shape of Arithmetic, in the hands of a Cambridge Graduate, now Principal of the Theological College of Gloucester. We have already announced to our readers the first appearance of this work, and are glad to find that the labours of the author in his arduous and venturesome task of reforming our old established school practice in a subject which comes home to the population of our land, if we except infants! for such is *cyphering*, which (in the work before us) has assumed its abbreviated, and we may say, its more philosophical form. It is explained in a handy, compact little page (something exceeding 400), but involving every process of dealing arithmetically with measures of quantity in all their kind and shape, English and foreign, and specially in reference to decimals, where the common vulgar fractions, as they are called, are under treatment.

We shall refer those of our readers to the work itself, who are for improving their arithmetical acquaintance with a new method, in preference to following up the old one, for our limited space grudges even room for any example. But we may note that the author's attention has been well-directed to the subject of weights and measures, English and foreign, along with the decimal system, which latter has been much simplified by him, and in which he has given abundance of applications, even to the explanation of *duo-decimals*, or *cross multiplication*, for finding square feet in any surface, or cubic feet in a solid: this followed by the extraction of the roots, leaves him to conclude his work with a goodly collection of examination papers for exercise, with their answers.

We must also add that a handy little school edition of the above larger work is also before us, with exercises in every branch of the subject, and their answers in a short appendix. And we have little doubt, that our old fashioned system of arithmetic with which we have, like the Chinese, followed the rules laid down by our forefathers will be gradually displaced by the Girdlestone method.

THE

# NAUTICAL MAGAZINE

AND

# NAVAL CHRONICLE.

## APRIL, 1870.

### The Flying Squadron at Sydney, Australia.

In the speech of the First Lord of the Admiralty, Mr. Childers, on bringing forward the naval estimates for the present year, he is reported to have expressed himself on the subject of the Flying Squadron, and we are enabled to adduce local testimony to the correctness of his remarks. "The Flying Squadron," he said, "has been a perfect success, and scarcely a mail comes in without a letter from Admiral Hornby, describing the great advantages of that experiment, and the improvement effected both with regard to officers and men; and begging that another Flying Squadron may be sent out this year. I believe that the presence of the Flying Squadron in our Colonial ports has done great good in increasing the feeling of attachment on the part of the Colonists towards the mother country. We therefore propose that another Flying Squadron should be sent to sea." In point of the effect of the presence of the Flying Squadron on the minds of the people of Sydney, we read the following in the *Morning Herald* of that place, shewing how much the presence of our ships is appreciated there.

The visit of the Flying Squadron will divert the popular mind, in some measure, from political discussions, especially as the elections for the metropolis are past. It may serve as a useful interruption in that kind of debate which tends to exasperate people against each other. The community may find satisfaction in the new evidence of British power, and in the sight of those naval evolutions which have so great a charm for Englishmen, and especially for those who reside near the sea.

The first question, no doubt, which will be addressed to the gentlemen who have arrived by many of the inhabitants may be—What do

you think of the harbour of Sydney? We just put our readers upon their guard against the absurdity of perpetually reiterating this query. An inquiry which is very natural to residents becomes irksome by frequent repetition. Certain officers who visited this port some time ago, when they went on an excursion into the country, erected a kind of booth for their lodgment, and on the outside hung an answer to several expected inquiries:—"We are the officers of H.M.S. ——; we are on a party of pleasure, *and we think very highly of the harbour.*" Perhaps this kind of reproof was not specially polite. But people may become ridiculous without doing anything which is in itself absurd, from the fact that other persons are thinking of and asking the same thing. We may take it for granted that the officers of Her Majesty's Navy, who are on a visit to these shores, were, as all who admire beauty of scenery are, naturally impressed by an extraordinary example of its beauty and magnificence.

The object of the Squadron, it appears, in visiting these seas, is to acquire that experience in concerted action which is so necessary for actual warfare. The last war was indeed deplorable. And when its history shall be written without acrimony, and upon a faithful examination of facts, it will appear startling to a nation that has prided itself on its naval power. Notoriously the Fleet of the Baltic failed of expectation; not certainly from the want of courage in the commander or pluck in the men, but from the sad destitution of experience. If any reliance can be placed upon the despatches of Sir Charles Napier, the great peril encountered was not by the enemy so much as by the Navy itself.

In a future war the success of any navy will depend greatly upon the manner in which it is handled, and its capacity for co-operation. The dreadful missiles which have been invented during late years, and the effect of which has yet to be proved, may render all past calculation illusory. We rely, however, upon the skill and courage of our countrymen, and upon their resources as engineers and as seamen, that they will not long be found inferior to their task if the voice of their Sovereign should call them into action.

The arrival of a Fleet of such magnitude, considering the distance it has traversed and the position of the colonies it visits, is a matter of congratulation. Not that we are at all unfamiliar with ships of war. They have visited us often, and bearing the flags of all nations. But we see that it is practicable to bring over the vast ocean a power that may be sufficient to protect commerce even in its most remote sphere, and we realise now the connection which subsists between the colonies and their parent State, as well as their dependence upon, and their utility to each other. The idea of ancient times, repeated so often in the great poem of Homer, was not very favourable. His heroes always inquire of strangers whether they have come with friendly intentions, or whether they belong to that class of mariners who commit piracy upon the seas, endangering their own or others' lives. This question recurred as often as a salutation was offered.

We fear the time is very remote when we may anticipate a peaceful

age, when no hostile galley "or gallant ship" shall enter our ports. So long as we are exposed to a hazard we must regard as of high importance the power of the Navy, and its accessibility for our help. But we must not depend exclusively upon such visitors, but be in a condition to defend ourselves until distant aid can come. Our commerce is the commerce of England. The ships that visit us are the ships of England. The insurance companies are chiefly resident in England. The banks largely belong to the same grand centre. More than half the goods that are capable of destruction, if traced to their ownership, would be found to belong to people at home. To say, therefore, that in defending the colonies nothing is done for England, is simply an absurdity.

So long as our commerce is of its present character, and the interests of home are associated with those of the colonies, losses cannot be inflicted by the depredations of a foreign enemy without falling upon the mercantile and financial world of London. An example of this liability was strikingly shown in the bombardment which took place in South America. It was not the goods of the people who lived there that were destroyed, but the goods of the London merchant, the property of the people who belong to Threadneedle-street. The defence, therefore, of the colonies is not to be looked upon as simply their own affair, but as a part and parcel of a general system which gives strength and prosperity to the whole empire. Still it is right that they should do their part, and in the combination of land defences and naval protection we have, perhaps, not much to apprehend from any foreign enemy. It is true that naval stations are forming at no great distance from the Australian ports, and it is possible they may steal a march on the British Government in the event of war. Against casualties of this kind, however, there can be no protection, excepting that which the people who live upon the spot can secure for themselves.

The arrival of so many members of a favourite profession will of course create considerable stir in the city; and we shall, doubtless, see some specimens of seamanship which are hardly recognised by the naval regulations. We must, however, make up our minds to this, and to give and take—always remembering that the very worst service that we can perform for a mariner is to minister to habits which not only debase man, but expose him to degradation.

It appears that our ships on their arrival had taken up a temporary anchorage which they soon left, and their movement into the harbour seems to have been the occasion of a kind of regatta, for we find that our Nautical propensities show themselves as active at our antipodes as they are in the Solent, and that yachts and steam yachts can sport themselves in the tranquil waters of Port Jackson, perhaps as numerously and with as much seamanship as they can off Cowes. The movement of the Flying Squadron there is thus recorded in the same paper as that from which the foregoing editorial remarks appear.

The most glorious sight ever witnessed in Port Jackson was the

passage of the Flying Squadron from their temporary anchorage at the Heads to their moorings in Farm Cove (perhaps better known as Man-of-war Bay), which took place yesterday. Admiral Hornby intended bringing his ships up the harbour under canvas, but owing to the southerly wind setting in, the idea had to be abandoned, and steam was substituted.

At any time, or in any part of the world, the movements of one or more of H.M. ships is always viewed with interest, but when a squadron, comprising six of the finest vessels in the service, is seen for the first time, it produces an indescribable sensation in the spectator, more especially when witnessed under fortuitous circumstances. The spectacle of yesterday will not readily be forgotten by those who were fortunate enough to be present; and, in after years, the particulars of this interesting event in the annals of our colony, will be repeated to eager listeners, when all that were present have passed away.

It may not perhaps be arrogating too much to say that we possess one of the finest harbours in the world for displays of this kind, and judging from the thousands that were present, [massed as they were on every available jutting point and headland.] all wrought up to a state of enthusiasm seldom seen as the noble ships, in the full panoply of war, steamed round Bradley's Head and came in view, we think the idea will be fully indorsed. The beautiful appearance of the ships as regards their hulls and spars, the correct order and seamanlike manner in which they held their various positions and were handled, and the total absence of bustle or confusion was as gratifying to the spectators as it must have been pleasing to the gallant Admiral who has the honour to command so fine a squadron.

The hour of 3 p.m was the time appointed for the ships to come up, by which time there could not have been less than 30,000 persons on Lady Macquarie's Point and along the Domain Road, all anxious to catch the first glance of the new arrivals; but we will give in detail the programme of the day. Arriving at the Heads at 1 p.m. yesterday, we found the squadron still at anchor, with steam up, but with one exception [the *Endymion*, which having disarranged some of her screw-gear was unable to use her propeller]. They had royal and top-gallant yards across, squared to perfection; *Phœbe* being the weathermost ship, the wind being south, *Liverpool* and *Scylla* the most leeward.

At 1.30 p.m. the first indication of their being about to way was the shortening in of the cables, and soon after the *Liffey* tripped, and steamed ahead of *Endymion*, dropping down stern first on her, and taking on board towing warps, a manœuvre that was carried out beautifully. The wind had by this time freshened considerably, and a long roll from seaward was coming in.

At 2.50 p.m. the *Liverpool* tripped, and came steaming up for the west channel, in charge of pilot Cork. She was followed by *Scylla*, then *Phœbe*, pilot Coots, and *Barossa*, the rear being brought up by *Liffey*, pilot Jenkins, with *Endymion*, pilot Christison, in tow. The

ships were separated by about three cables length, but when they had cleared the bar, signal was made by the Admiral to form close order, *Liverpool* going off at full speed. The vessels all kept the proper line, and preserved the regulation distance.

After rounding Bradley's Head *Liverpool* and *Scylla* ported their helms and passed north of Fort Denison, *Phœbe* and *Barossa* keeping to the south side of the harbour. *Scylla*, after rounding Port Denison, steamed past the *Liverpool*, and ran well into Farm Cove, *Liverpool* following and taking up her mooring inside *Challenger*, *Barossa* at the same time passing *Phœbe* and anchoring under the stern of *Scylla*, *Phœbe* mooring out in the stream. *Liffey* still having *Endymion* in tow, passed across *Phœbe's* bows, dropped *Endymion* in her proper position to the westward, and then keeping on her course steamed up the harbour as far as abreast of the Cove; here she cleverly slewed—and coming back again took up her proper moorings.

On the *Liverpool* being sighted at Bradley's, the flag was saluted by the *Challenger*, and promptly returned from the Admiral's ship. The French Consul boarded the *Liverpool* shortly after she brought up, and was received with the customary honours. The process of mooring the squadron was finished by 3.50 p.m., each vessel coming to with wonderful precision; sails were then unbent, and at sundown top-gallant and royal yards sent down, but until dark the crowds assembled and lingered, unwilling, apparently, to leave so picturesque a scene. In addition to the yacht squadrons, no less than ten steamers, including the *City of Brisbane*, *Black Swan*, *Collaroy*, *Agnes Irving*, and *Breadalbane*, well freighted with passengers, proceeded to the Heads, and after steaming round the squadron accompanied them up the harbour. The Government steamer *Thetis*, Lieutenant Gowland, with the Harbour Superintendent, Captain Hixson, on board, proceeded to the Heads early in the day, to be in readiness in case of any unforeseen accident with such heavy drafted ships crossing the bar.

Amongst the special features of the day was the display made by the yacht clubs. Commodore Dangar's fine cutter the *Mistral*, bearing the pennant of the Royal Sydney Yacht Squadron, was the first underway, and reached the Cove shortly after noon. Commodore Hanks, of the Prince Alfred, followed soon after, and signalled from the *Psyche* for his club to rendezvous in Watson's Bay, where ten smart little clippers were soon after to be seen at anchor.

The *Mistral*, *Xarifa*, *Peri*, *Nereid*, and six others of their squadron, stood down the harbour, met the men-of-war off Middle Head, and, hauling their wind on the starboard tack, crossed the flagship's bows. After making a stretch towards the east shore they tacked and stood up harbour, in line, following the Commodore. As soon as the *Liverpool* was abreast of Lang's Point the signal of "Follow me in line," made by the *Psyche*, brought the Prince Alfred into position, and they left Watson's Bay with a free sheet, but soon hauled their wind and stood up harbour abreast of the senior club, both being handled so admirably that the two seemed as if belonging to one club, obeying orders to form two lines.

The *Mistral* went about off Point Piper, crossed the head of the Prince Alfred's line, and as the larger yachts of the R. S. Y. S. followed in her wake, their coming up through the lee of Commodore Hank's fleet, compelled them also to tack instead of keeping in line abreast of the Flying Squadron. All the yachts stood down for Shank Point, and from thence came up in line astern along the southern shore. The Royals passed right up through the Squadron, and saluted the flagship, while the Prince Alfred rounded Fort Denison, and passing under the stern of the *Phœbe*, stood on for the *Liverpool*, which they saluted, and then working in and out pressed under the sterns of the other ships, and paid them a similar compliment. Meantime the R. S. Y. S. went a short distance down the harbour, and formed in two lines abreast, and in this order ran up past Dawes' Battery, when they again formed in line astern of Commodore Dangar's yacht.

The yachts belonging to the two clubs were not by any means the larger portion of those under way. The harbour seemed studded with white wings, flitting hither and thither, freighted with holiday-makers, enjoying the novel spectacle afforded them by Admiral Hornby's visit. Some of the small steamers caused a little inconvenience to the yachtsmen by getting in amongst them; and one of the Parramatta river boats not only destroyed the line, but compelled some of the yachts to go about just as they were reaching past the stern of the *Liverpool*. It is remarkable that amid all the excitement and confusion not a single accident occurred to mar the day's proceedings.

Such a display as was afforded by the foregoing was no doubt entirely new to the harbour and residents at Sydney, and no one could doubt the good effect it produced. We are glad to see that such visits are likely to be renewed, and consider that they will not only be renewing the attachment between the colonists and ourselves, but may also be the means of encouraging that predilection for the sea, which cannot but produce good effect amongst our countrymen abroad.

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## WORK FOR THE SUEZ CANAL.

*Aperire terram gentibus.*—To open the land to the people, is the motto of the scholar, the traveller, the soldier, and the sailor, the colonist and the merchant; illustrious or obscure, this is the maxim of all; and every day the ancient barriers which shut up many fair portions of our globe give way before our enterprise and perseverance.

Among these, until recently, stood the isthmus of Suez, and the undaunted perseverance with which that barrier has been removed has been well displayed by M. Lesseps, who we trust will be supported in any future endeavours that it may become necessary to make in keeping away and removing those future obstacles which nature may throw nto his invaluable canal. It will gradually become a national benefit

to a great many states, and it is to be hoped that those states will contribute to his assistance in that work in proportion to the benefit which they derive from it. What states these are we shall see something of in the sequel.

The author of the little brochure from which we are quoting, says in our July number of 1856, Some little time ago I quoted at the commencement of one of my works the sublime motto of Alexander, and devoted some sentences to a commentary on it, firmly convinced of this great principle, that the riches and civilization of the world are in accordance with the respective mutual relations of the people. Thus man by himself is rude, the inhabitants of confined cities are little better than barbarous, and those of empires scarcely civilized. Europe has only become great since the rest of the world has been open to her resources. Europe inherited by Rome from time immemorial, became in one day the imitator of her glory and her wisdom; like a phœnix she rose from her ashes and was born anew. The intellect of man then became free when it was made common to all by the press. The routes to America and India were then discovered by Columbus, and by that great captain, of whom Camoens speaks,—

"Son da Forte Europa bellievsa
Basco as terras de India tao formosa."

Former ages had beheld no such revolution; but since its accomplishment, Europe accelerating her progress, until then imperceptible, has advanced with a still increasing rapidity, the law of which may almost be compared with that of falling bodies. Thus steam and electricity have rendered us masters of distance and time, and by means of railroads the continent is again becoming a frequented district of the globe.

On reflection, however, it is perceived that the traveller can alone follow these costly paths, and that commerce in general, restrained by economy, will require thousands of vessels on the ocean, and is not satisfied with the gratuitous influence of the winds.

To cut through the isthmus of Suez or Panama would be to open shorter and less dangerous routes for the navigator, to reduce the expense of trade, and to extend commerce by facilitating it; to increase the welfare and riches of all, to bring nations together, and thus to contribute the greatness of one to the civilization of another. Such is one undertaking reserved for the second half of this century, already so remarkable—an era which this great work alone would render celebrated.

Of the two canals, that of America and that of Suez, the importance is very different. The canal of Suez (now completed) will unite India and Europe. It will establish the commerce and prosperity, the peace and advancement of Europe, Asia, and even Africa, in a word, of the whole of this hemisphere, the continental superficies of which compared with that of the opposite being in the proportion of 23 to 11. To Mr. Ferdinand de Lesseps was reserved the honour of attaching his name to this great enterprise, authorized and patronised by the Viceroy

of Egypt, Mohammed Said. Happy in being able to praise one of the chief men of Egypt with regard to this new triumph of civilization, I rejoice still more in being able to devote a few lines to the consideration of the questions presented by the opening of a channel between the two seas.

If we compare the mean distance between the ports of Europe and India, by the Cape of Good Hope, on the one hand, and by the canal between the two seas on the other, we find an enormous difference in favour of the latter route. This difference will be still greater if we remember that a straight line on the chart in navigation is far from being the shortest distance from one port to another, and the seaman can only reach the point for which he is steering by following a certain number of successive courses approaching as near as possible the arc of a great circle. Thus, far from making directly for the Cape of Good Hope, vessels leaving Europe or the Atlantic ports of North America, en route for India, must steer for the Canaries or Azores, in order to find the trade winds of the northern hemisphere, to make the coast of Brazil, and sight Cape Frio or put into the harbour of Rio Janeiro. This is generally the route for the Cape of Good Hope, more justly, perhaps, called the Cape of Storms. They then cross the Agulhas bank, reach Bourbon or Mauritius, and from thence steer for India following the routes allowed by the monsoons. Vessels in the Mediterranean again have to contend with still greater disadvantages. It often takes them fifteen days to reach the straits of Gibraltar, westerly winds generally prevailing in this quarter, where we also find a rapid flow of the ocean waters into the Mediterranean. Thus the voyages to India take at least three to five months; the voyages home being rather more direct without being sensibly shorter. Ships can then run nearer to Africa by reason of the trade winds of the southern hemisphere; the place of call in this case being St. Helena.

I have myself taken both these routes. If we now examine the facilities for navigation in the three seas near the canal of Suez, namely, the Mediterranean, the Red sea, and the Gulf of Oman, we find—that in the Mediterranean the winds blow from the north during the greater part of the year, change to S.E. in the spring and return to the north, passing by the west and N.W. That nearly the same takes place in the Red Sea, where the north, which is the prevailing wind, heaps the waters in the direction of Bab-el-Mandeb, so that during a calm we observe a current setting northward, evidently arising from the elevated waters in the south endeavouring to recover their level. Southerly winds generally succeed a calm.

The Gulf of Oman has two monsoons—the N.E. monsoon, which generally continues during winter, and the S.W. monsoon, which lasts during the summer, and is frequently stormy. The change from one monsoon to the other monsoon is there, as elsewhere, attended by a series of storms and gales.

It appears from the foregoing that it would be advantageous for vessels to proceed to India (by the Canal) during the autumn, and to return (by it) in the spring.

The considerable reduction of the distance of European ports from those of India, would not be the only advantage to trade from adopting the Canal between the two seas; for not only would vessels reach their points of destination much sooner, but they would find places of anchoring throughout the entire route; and also—what is of more importance still—they would meet with good markets. The navigator, after having followed the usual easy routes of the Mediterranean, would dispose of part of his cargo in the Canal or at Jeddah; would purchase ivory at Massowa, Souaken, or Berbera, which he would exchange in India for opium to take to China in exchange for silk and tea. He would complete his home cargo in colonial merchandize from Manilla, the isles of Sunda and Ceylon; in cotton of India or Egypt, in coffee of Abyssinia or Yemin, the gum of Soudan or Hedjaz, the corn of Lower Egypt or Damietta, and these numerous operations, which now require years, would be accomplished rapidly and without danger with small capital and with small vessels.

In short, by reducing the time necessary for the operations of commerce, we reduce the general expense. We make a great number of these changes feasible in a given time, and facilitate them to small traders, who are by far the most numerous. By affording an easier and surer route to navigation, we find it may be accomplished by vessels of small tonnage, provided with bills of exchange. In short, it opens the route to India for coasting vessels, and renders commerce and navigation general. Turkey, Russia, Austria, Italy, and Southern Spain might then fit out vessels for India, and these would find their maritime resources increase in immense proportion. Marseilles would become more important, and the ports of the ocean, Cadiz, Lisbon, Havre, Rotterdam, Hamburgh, would increase their shipping, like England suddenly brought near its powerful colony—like Spain and Holland with respect to Manila and Batavia. In short, the increase of trade competition on the one hand, and the vast diminution of expense on the other, would doubtless tend to lessen the rates of exchange. The produce of Asia would abound in our markets; the Asiatic markets would, in their turn, be rich in ours; and the general good would be the necessary result.

Considering the advantages arising from the opening of the Suez Canal, the different countries brought into connection by means of it might be divided into six classes, viz., three on the east, and three on the west side of it.

In the West:—

1. The countries bordering the Mediterranean.
2. The Atlantic countries of Europe.
3. The Atlantic States of North America.

In the East:—

1. The countries bordering the Red Sea.
2. The countries bordered by the Indian Ocean.
3. Eastern Asia and the isles of the ocean.

It is evident that the ports of the Mediterranean and the Red Sea are those which would profit most by the Canal.

That Atlantic Europe and Southern Asia — namely, Musakat, Bassora, the whole of India, the Burman Empire, as well as Eastern Africa, namely, Zanzibar, Mozambique, and Madagascar—have a great interest in seeing the Canal of Suez opened. In fact, that part of N. America bordering on the Atlantic and the Gulf of Mexico on the one hand, Cochin China, China, Japan, the Molucca and Sunda islands, Australia and New Zealand, on the other, would come under the third class. It would be very advantageous to take the Canal in the passage from New York, for example, to Canton or Batavia.

All nations would take advantage of the important trade with India, China, and the islands of the ocean. Trade with the Red Sea, although less considerable, deserves attention; but as there is scarcely any carried on at present, it is very little known, and could only acquire importance by the opening of a canal between the two seas. The Red Sea, which is so near to us in a straight line, becomes far distant when we have to double the Cape. Bab-el-Mandeb is as far from us as Pondicherry, and Souaken as far as Batavia. Suez, further still, by this route becomes as near as Beirout by the Canal. In short, the two routes, measured from the Straits of Gibraltar to Souaken, are in the proportion of one to five.

Very few European vessels are now met with in the Red Sea. Every year we see a few belonging to the Parsees of Bombay, and manned by Lascars. The internal trade of this sea is now carried on by Arabian vessels, called *dows*, or *boutres*, constructed at Suez, Djedda, Kosseir, Souaken, or Mocha, with wood from India or Singapore. These vessels are of very small tonnage, are very sharp, and have a handsome sheer, a heavy poop which hinders their working, and lowers it at the stern. They carry one mast with a square sail; this sail, with its yard, is lowered to the foot of the mast when they lay to. About thirty men are required to hoist it, and this operation cannot be performed in less than half an hour. The tacking of these vessels is as difficult as it is dangerous. The dows only sail in the daytime; they get under sail about seven o'clock in the morning, sail till about four in sight of the coast, then anchor with a grapnel or run aground on the sand.

When they have to cross the Red Sea, the Arabs take the precaution of sailing from a port to windward of that for which they are steering on the opposite coast. This voyage occupies sixty hours, and is always a time of great anxiety to the masters of these vessels. These masters (called "nakhonda," from a Persian word) pretend to take observations with astrolabes of great antiquity, although this pretension does not appear to me to be proved. I must add that we rarely find a compass on board these *dows;* the classic compass of the Arabs only consists of a needle, more or less magnetic, resting on a cork which floats in some water, and hence we need not be astonished that one fifth of the dows are lost every year.

The sailing qualities of these dows are by no means good. I have myself passed forty-five days in two of them; namely, fifteen days going from Souaken to Djedda (about sixty nautical leagues), and thirty days in going from Djedda to Kosseir (scarcely 130 nautical

leagues). It is true that the wind was against us, and half of this time was employed in beating to windward, sometimes still less. There is a great difference between these dows and our vessels; thus we may suppose that the introduction of European vessels into the Red Sea by the Canal of Suez would cause a complete revolution, even in the internal commerce of this sea.

The ports of the Red Sea would carry on trade in coffee, gum, ivory, and such produce as senna, wax, ostrich feathers, etc., which I quote from memory. At Djedda they would take cargoes of gum; at Souaken, gum and ivory; at Mocha, coffee; at Massowa, as well as Tadiuira, Zegla, Berbera, situated in the Gulf of Adeor, gum, ivory, and coffee.

If there be not now a considerable trade in the gum, coffee, and ivory of the Red Sea, it must be attributed to the distance that separates us from the Red Sea by the Cape of Good Hope. The great powers whose vessels double the Cape—namely, Great Britain, France, Spain, and Holland—have colonies elsewhere, and do not require to supply themselves from this coast, at least with regard to coffee; but if the Canal of Suez were opened, Greece, Turkey, Russia, Austria, and Italy, who have no colonies to supply them, would derive a great advantage in getting coffee from the Red Sea. Of all countries producing coffee, Abyssinia would be nearest to the Mediterranean, Europe, and to its two eastern peninsulas, Greece and Italy, and the two seas bordering Russia and Austria. The Lesser Antilles are nearly as far from the Strait of Gibraltar as from Abyssinia; the Greater Antilles are more distant, as well as Brazil. As for Ceylon and the Sunda Isles, they can only be reached by the Red Sea. The cultivation of sugar also appears throughout most of the colonies to be more and more substituted for coffee—less, perhaps, on account of the privileges granted by some of the States to colonial sugars, than by reason of the enormous increase in the consumption of sugar and alcohol—an increase which is caused by the metropolis sugar trade.

Abyssinia, the port of which is Massowa (a Turkish possession), might furnish a coffee of a superior quality, at a reasonable price, and in great abundance. This coffee, which is little known in Europe, is sold there under the name of Mocha Coffee; the port of Mocha, indeed, is scarcely ever visited by European vessels, the coffee being much dearer there than at Massowa. It is true this is of rather a finer quality. Turkey, Egypt, and Venice consume it in small quantities. Captain Jehenne, known as the author of some good hydrographical works, visited the ports of the Red Sea and the Gulf of Aden about twenty-six years ago. Mr. Perville, a distinguished botanist attached to this expedition, published an interesting account of the produce of Yemen, and particularly that of coffee. A few Europeans already resort to Abyssinia, and we have reason to hope that the opening of the Canal between the two seas would draw a greater number from this part, and we should find extensive plantations formed there under the protection of the European powers, with the consent of the local authorities, on a fertile soil, the working of

which would cost but little, and the produce of which would be very extensive.

Abyssinia, inhabited by a Christian population, would receive emigrants from Europe. She would thus acquire a taste for our produce, the investment of which would possess a certain importance in this part, especially with regard to fabrics, arms and ammunition, hardware and glassware employed in trade to the interior. I think that an inferior quality of brandy would also find a ready sale in this country.

Every year European vessels would transport a considerable number of pilgrims from Massowa to Jaffa, on their way to Jerusalem. The Abyssinian *devotee* of the present day braves the greatest danger, and undergoes the utmost fatigue, to visit the tomb of our Saviour. His pride and fanaticism suffer greatly on board the vessels of the Red Sea, manned by Mussulmen, and the journey from Suez to Jerusalem through the Mussulman countries. This pilgrimage, little frequented at present, would increase considerably if favoured by European vessels, and I even think that it would be advantageous for a company to bring steamers into the Red Sea, which would transport Christian pilgrims to Jerusalem during one part of the year, and Mussulmen from Medina and Mecca during the other.

The Mussulman pilgrims might be taken from Constantinople, Beyrout, Tangier, Algiers, Tunis and Cairo, Zembo and Djedda. The pilgrims from the Mediterranean amount, at least, to 30,000 or 40,000 a year. We may calculate that the caravan of Damascus and Cairo would contain together about 5,000, and the vessels of Suez and Kosseir would transport, at a reduced rate, an equal number. The remainder would take their passage on board the European vessels, and go by way of the Canal between the two seas.

Massowa now consumes but little European produce, and Souaken never receives anything from Europe except ammunition for trading, hardware, English cotton stuffs, and Austrian glassware, for exchange on the White river.

Medina, the port of which is Zembo, Djedda, and especially Mecca, are large cities, where we find more refinement and luxury than in most Mussulman towns. The strangers who resort thither from all parts of the world at the time of pilgrimage circulate a great deal of money. These cities, however, are situated in the midst of an arid country, and are deprived of all industry, and are obliged at these times to obtain their articles of consumption elsewhere. Corn is sent from Egypt by Suez and Kosseir. A great portion of this corn would pass by the Suez Canal. European and Turkish fabrics are also sent, and these would hereafter follow by the Canal. This merchandise consists of cottons, linens, silks, ready-made clothing, guns and muskets of Austrian make, hardware, pottery, oil, potted butter, wax, candles, sugar from Egypt, soap from Syria, brandy from Chio or Egypt. In the holy cities there is an immense consumption of this last article. I may here observe that the people of Medina and Mecca are sadly irreligious, although they live by religion.

The towns of Hedjaz also consume a great quantity of Indian produce.

I have mentioned Souaken as being able to furnish gum and ivory. This port already sends a certain quantity to Djedda, where the merchandise receives its ultimate destination. Gum and ivory are sent to Souaken from Khartoum and the Egyptian Soudan. I will now make a few observations on Soudan, and the Egyptian Soudan in particular.

The name of Soudan (Nigritia) is given by the Arabs to a region of Africa south of 16¼° latitude, extending from Senegal to Abyssinia, and being larger on the south than on the north side of the equator. The north and south limits of this region are marked by the rains which fall from May to October in that part of the Soudan situated north of the equator; and from November to May in the other hemisphere. These rains never reach beyond 16½° N. lat. North of this parallel those arid deserts commence, the deserts of Sahara and the Lybian desert, which near the Mediterranean bound those barbarous kingdoms subject to the winter rains, and are intersected on the east by the fertilizing course of the Nile.

The Soudan is inhabited between the 16½° and the 10° north latitude by bigoted Mussulmen, and south of the 10° parallel by black idolators, who are often reduced to slavery by the former. Black Arabs inhabit the northern countries of the Soudan, we find them from all parts from Sonaken to Senegal. The same division of climate is found in Arabia as in Africa, so that this peninsula which is either arid and barren, or covered with poor pastures, as far as the 16½° parallel, receives abundant rains and becomes covered with a rich vegetation south of this parallel, namely, in Yemen, or Arabia Felix.

The rains of Soudan feed thousands of streams and give rise to large rivers, lakes, and marshes, which like the rivers are subject to annual overflow. The moist ground, under the influence of a burning sun, becomes covered with a rich vegetation. The scattered and barbarous population cultivate only a portion of it. Immense forests are found in some parts, composed in a great measure of gum-trees, amidst which elephants abound.

The trade of the Soudan is now chiefly carried on in gum and ivory, we may also add from memory senna, ostrich feathers, hippopotamus' teeth, wax, etc. These articles are now taken to Senegal and to all the west coast of Africa, to Zanzibar and other parts of its eastern coast. They are taken by the Africans to Mogador and Tripoli from Barbary; by the Africans and Europeans to Alexandria, they are obtained second hand by the English, Austrians, and Italians.

I have elsewhere shown that the price of these articles was very high at Senegal, on the Gambia, at the Mozambique, and Zanzibar, as well as on the shores of the Mediterranean, and at Mogador, where the expense of conveyance by caravan forms another addition to their original prices; I also showed at the same time that those articles were sold at the lowest possible prices in the Egyptian Soudan. The eastern part of the Soudan, which I visited a few years since, has become very

accessible to Europeans. This region was conquered in 1820 by an Egyptian army commanded by Mohammed Beg Defterdar; it comprises the provinces of Dongola, Cordofan, Kartousa, Sennar, Fazoglland, Faka, we may also add a new province forming the basis of the Upper Nile. The Egyptian Soudan is governed by a Ferik-pasha (a brigade-general), sent from Cairo with the title of Nokmader (governor), who resides at Khartoum, and by inspectors or mondhirs, one for each province. Sonakon is no longer dependent on Egypt, this port has been ceded to the Sultan, and forms Great Pachalin of Djedda.

Previous to 1850 the trade of Soudan was monopolized by the Egyptian government, a monopoly founded on the principle that the gratuitous gifts of nature belong the sovereign, gum and senna not requiring cultivation were therefore considered similar to the produce of quarries and mines. Since 1850 this trade has become free, and the European merchants, who for a long time only obtained by smuggling, have been able to extend their operations.

The gums of Cordofan and Sennar are most sought after, that of Cordofan is the finest we know of, it is found in pieces the size of one's hand, perfectly clear; the gums of Hedjaz and Senegal are of an inferior quality. During my stay in Cordofan 100lbs. of gum cost from 27 to 32 Egyptian piastres. It was put into skins sewn together which were charged at three piastres the hundredweight.

Cordofan has exported nearly 36,000 cwt. in one year, it would supply a hundred times as much if the demand was a hundred times greater, only a small portion of the gum produced being now collected. The greater part of the gum collected at Cairo is sent to Trieste through Alexandria.

Cordofan and Sennar supply ivory for trading. It is however a little further to the southward towards 10° that elephants are found in great numbers. These animals frequent the vicinity of streams, they live singly or in families during the dry season, and unite in numerous troups under the guidance of an old male elephant, called by the Arabs khabir (guides), during the rainy or winter season.

The people of the Upper Nile can only hunt the elephant during the winter, indeed, hunting it as they do with guns they can only attack it alone. The merchants established in Soudan now obtain ivory on the White river. Some of these hunt provided with good carbines, the great length of their weapons allowing them to hunt even during the winter, when the animals unite in herds.

Since the travels performed by M. Amand and Selim Efendi Bembachi, the White river has been more frequented by vessels of Khartoum, and although the sources of this river have not yet been discovered, the study of its hydrography has made great progress. We have sailed up the Nile to the  degree of north latitude, it was there that the missionary, Angelo Vinco, died two years ago, a martyr both to religion and science.

We are not limited to the study of the river itself, its streams have been partly explored, and new ones discovered which will be explored in their turn; the Saubat and Keilak (Bahar-egh-ghzal-Misselad) have

been known for some years. Three other streams, the Gnok, the Miedjok, and a river not yet named, have been recently discovered on the right bank of the river, a little above Saubat (perhaps they may be regarded as the three branches of one river). Lastly, on the left bank, above the Keilak, M. Vayssiere has recently discovered a considerable stream, called in the country Niebohr, which comes from the south, and enters the Nile by four mouths between the parallels of 7° and 8° latitude.

The Saubat, the Neibohr, and especially the Keilak, which receives on its right bank the Kouan or Apabon, are great water courses; the Gnok and Miedjok are navigable for the barks of the nations for some distance from their mouths. All these rivers flowing through a country little cultivated, cover an immense space when they overflow, while during the dry season they run slowly from the smaller streams through the marshes they have produced.

Some commercial routes refer the basin of the Nile to more distant countries, such as the route mentioned by M. Vayssiere, leading from the mouths of the Niebohr to Djoukor in the country of Korck, the population of which appears to be all Mussulmen, belonging in all probability to Darfour.

The basin of the White Nile forms the largest market for ivory open to commerce, throughout the whole of Africa; no region of the idolatrous Soudan is so approachable to Europeans as this. In other parts the merchant is obliged to supply himself second-hand, or else encounter considerable danger and fatigue in exporting the ivory from the interior, thus this lucrative trade is principally given up to the natives. The Europeans of Khartoum enjoy favours and privileges which they do not obtain elsewhere. The people inhabiting the shores of the White river have either already become subject to Egypt, or have seen its standard raised. Naturally timid, they respect the Europeans as they do the Egyptians, free from fanaticism they feel no hatred against them; and if misunderstandings, which are to be lamented (one of which has cost the life of Vandeg), have taken place we must seek to find their cause in faults committed by the merchants, and in the deplorable spirit of rivalry which animates them. The imprudence of the one and the weakness of the other, and the disorder and confusion resulting from them will terminate in their loss if we do not find some remedy. It is partly the agents of the European powers in Egypt and partly the government of this country whom we expect to take suitable measures with regard to this.

I think myself that the wisest way would be to give up the exclusive privilege of the trade up the White River to a company, admitting those merchants now established at Khartoum, and to confide the care of superintending the operations of the company to a European delegate, with authority to exclude merchants who had just complaints brought against them.

The Viceroy of Egypt as the legitimate master of the Upper Nile, and acting in place of the Sovereign might erect fortified posts at the principal sources of the White River; in each of which might be

placed fifty black soldiers under the orders of a captain. Those posts might be connected by armed vessels, each manned by twenty men, with orders to guard the borders of the river and to protect the vessels of the company.

Within and near the external enclosure of each fortified post, the company trading with the natives might establish a counting house and warehouse; a clerk residing there whose business would be to exchange with the natives, and receive and store the ivory which the crafts of Khartoum would take away every year.

The caravans from Darfour take from 1,000 to 1,500 cwt. of ivory every year to Siout. If the port of Souaken were rendered more accessible to European vessels by the opening of a canal between the two seas, this ivory would probably pass through Cordofan and Khartoum, and be taken on board ship at Souaken: the freight would be much less, and this route would be also much preferred, by pilgrims going to Mecca instead of the one now taken.

The caravan from Siout has of course been stopped by the abolition of the slave trade in the States of Mahomed Said. This caravan transported from 1,000 to 1,500 slaves every year, who were sold at a much higher rate at Siout than in Cordofan. The caravans from Darfour went by way of the desert as far as Siout; they might have ended their journey at Dongolah, on the Nile, but the merchants found they could sell their exhausted camels to a greater advantage at Siout, as they did not require so many of these animals on their homeward journey. Besides the Sultan of Darfour, fearing an Egyptian invasion, took care to keep the route from his frontiers to Dongolah closed. This route, like those of the desert, is determined by the positions of the wells. The Egyptians who are unacquainted with these wells, and who cannot in all probability find guides on whom they might depend, dare not attempt it. Darfour has less to fear with regard to an invasion from Cordofan.

I have shewn the route uniting Chanbá the capital of Darfour, with Lobeidh capital of Cordofan. This route is traversed by caravans in fifteen days. Freights are taken at 75 or 80 piastres the canal load, viz., five hundredweight.

The transport of goods from Lobeidh to Cairo costs 150 piastres per camel load, and with the necessary stoppages occupies two months. Thus—

| | Piastres per rahal. | Days. |
|---|---|---|
| Lobeidh to Debbe .. .. .. .. | 80 .. | 15 to 18 |
| Debbe to Dongola by bark .. .. .. | 3 to 4 .. | 3 |
| Dongola to Waddi Nalfa by caravan, the conveyance being rather dangerous to this part of the Nile .. .. | 50 .. | 12 |
| Waddi Nalfa to Assouan by bark .. | 5 to 6 .. | 8 |
| Release of the camels to avoid the cataracts .. .. .. .. .. .. | 3 .. | ½ |
| Assouan to Cairo .. .. .. .. .. | 10 to 12 .. | 15 to 20 |
| Total .. | 146 to 150 | 53½ to 61½ |

The transport of the same merchandise from Lobeidh to Souaken, only costs at most 128 piastres per rahal, and only occupies from 30 to 35 days; namely,

| | Piastres per rahal. | Days. |
|---|---|---|
| Lobeidh to Khartoum .. .. .. .. | 50 to 60 .. | 10 |
| Khartoum to Berber by bark .. .. | 4 to 8 .. | 8 to 10 |
| Berber to Souaken .. .. .. .. | 60 .. | 12 |
| Total .. | 114 to 128 | 20 to 32 |

Thus the merchant who instead of taking his gum to Cairo, transports it to Souaken, would economise greatly, and during the latter part of the dry season, the time when the gum is collected, he would be able to make two voyages for gum instead of one.

From Khartoum to Cairo there are two routes, viz.,

| | Piastres per rahal. | Days. |
|---|---|---|
| 1st, Khartoum to Debbe .. .. .. | 50 to 60 .. | 61 |
| Debbe to Cairo .. .. .. .. | 66 to 70 .. | 38½ to 43½ |
| 2nd, Khartoum to Berber .. .. .. | 4 to 8 .. | 8 to 10 |
| Berber to Koroska by caravan | 160 to 180 .. | 15 to 20 |
| Koroska to Assouan by bark .. | 3 to 4 .. | 3 |
| Release of the camels in order to avoid cataracts .. .. .. .. | 3 .. | ½ |
| Assouan to Cairo by bark .. .. | 10 to 12 .. | 15 to 20 |
| Total .. | 180 to 207 | 41½ to 53½ |

The first route for different reasons is seldom followed.

From Khartoum to Souaken however, the carriage of a rahal only costs from 64 to 68 piastres, and the voyage occupies 20 or 22 days.

From this it appears to me that if the canal between the two seas were open to navigation, the whole trade of the Egyptian Soudan would pass through Souaken, and the greater part of this trade would pass through the canal.

I think I have shewn that the canal between the two seas would open important markets in the Red Sea to European commerce, and render us masters of the interior of this sea. Thus Europe would behold her commerce and power increase, while countries and people long forgotten, would see the barrier melt away that has so long separated them from us.

We have only considered and that very slightly the smallest portion of this vast revolution. What would be the result if we were to examine all its consequences? When the canal between the two seas is opened, we may with truth say of Europe

> All thine shall be the subject main,
> And every shore it circles thine!

And Europeans will to these countries diffuse better laws than they now have.

These lines were written several years ago, and as the canal has been a great fact accomplished, we look for some of the results foretold —but which of course require time for their verification.

Here is the first contribution, from a daily print :—

"SIR,—The receipts of the Suez Canal since the opening, and made up to the 28th February last, amounted to 908,599f. 85c., derived from tolls on fifty-five vessels, transit on merchandise and passengers, rent on landed property and houses. The traffic through the Canal in the month of January was at the rate of one vessel every other day. In February it increased to one vessel per day, and during the first fortnight in March the following twenty-nine vessels passed through:— *Chandi*, *Africa*, *Europe*, *Danube*, *Vedetta*, *Hoogley*, *Kaffraria*, *Robert Lowe*, *Erll King*, *Asie*, *Snipe*, *Tszru*, *Massonah*, *Stirling*, *Hawk*, *William Cory*, *Alice*, *Volante*, *Diomed*, *Malta*, *Sphinx*, *Atlas*, *Alonso*, *Apollo*, *Daphne*, *Teazer*—being equal to about two vessels per day. Of these twenty-nine there were seventeen of British nationality. The tolls during these fourteen days amounted to 169,289f. 80c.

I am, etc.,

"DANIEL A. LANGE, Director and Representative of the Suez Canal Company.

"21, Regent Street, London, March 19."

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## THE LIFE-BOAT WORK IN 1869.

AT the London Tavern, on Tuesday, the 15th ult., there was one of the most interesting meetings of the present year, that of the annual assembly of the friends and supporters of the National Life-boat Institution. The Duke of Northumberland, President, took the chair on the occasion, and it was gratifying to see among the company present: Thomas Baring, Esq., M.P., Thomas Chapman, Esq., F.R.S., Sir Edward Perrott, Bart., W. H. Harton, Esq., Admiral Sir W. H. Hall, K.C.B., Colonel Fitz-Roy Clayton, Dr. Nolloth, R.N., Charles Semon, Esq., Admiral Tarleton, C.B., P. Maughan, Esq., Sutton Sharpe, Esq., Samuel Lovelock, Esq., Captain De St. Croix, Captain De Canso, Captain Toynbee, Dr. M. Hamilton, R.N., Captain The Hon. F. Maude, R.N., J. A. Dow, Esq., Admiral Goldsmith, C.B., Captain Herring, R N., C. V. Nelson, Esq., Admiral McHardy, Captain Symons, R.N., Captain Jarman, R.N., R. Harrison, Esq., and many other gentlemen supporters of the Institution. The report of the Committee gave an interesting and practical account of this highly responsible trust the British public continues to repose in them, and it was well observed by them that at the close of one of the most stormy seasons ever known on our shores, the value of British Life-boats, and the tried mettle of their crews, had responded nobly to the encouragement of their countrymen. The continued confidence that had been reposed in the Institution, and the success that had attended its proceedings had not

only induced it to persevere in its great work, but had also inspired its Committee with gratitude to the Almighty Disposer of events, who had so greatly blessed their labours, thus crowning the charitable desires of those who had promoted them with their pecuniary aid.

One of the principal incidents which the Committee had to record in the history of the Institution for the past year, was their voluntary relinquishment of that annual subsidy, which for the previous fifteen years they had received from the Mercantile Marine Fund. Finding the general support of their countrymen to be sufficient to maintain and work their Life-boat Fleet, and to meet all other requirements attending it, and being confident that they might rely on its continuance, they have considered it a public duty to decline at present further assistance from funds raised by taxation:—a noble tribute truly this to the voluntary principle. Our Institution, by its well-directed and well-gifted endeavours, silently tells the Government, "We require no aid from you, we rest entirely on the support of our countrymen to help us to carry on the great and national work of the Life-boat Institution."

The report tells us that in the last year, twenty-one new life-boats had been, or were about to be placed on the coast of the United Kingdom and Channel Islands, eighteen of them having been for new Stations, and two taking the place of decayed boats. We find the names of the Stations at which these Vessels of Mercy have been placed thus stated:—On the coasts of

*England.*—Durham, West Hartlepool; Yorkshire, Whitby; Suffolk, Corton, and Lowestoft; Kent, Kingsgate; South Devon, Sidmouth, and Salcombe; North Devon, Appledore, and Clovelly; Cornwall, Mevagissey, Portloe, Porthoustock, and Port Isaac.

*Wales.*—Pembrokeshire, Solva; Cardiganshire, Fishguard.

*Scotland.*—Wigton, Whithorn; Ayrshire, Ballantrae, Troon, and Ardrossan; Buteshire, Arran; and Channel Islands, Alderney.

Carriages and boathouses have been likewise provided at nearly all the above places. The Institution have now two hundred and twenty Life-boats on the coasts of Great Britain and Ireland, and the Channel Islands.

During the past year, those boats had rescued no less than eight hundred and seventy-one persons from a watery grave, nearly the whole of whom had been saved under circumstances which would have precluded their being saved by any ordinary boat. Without the hearty and courageous assistance of the fishermen and other boatmen on our coasts, the Committee have felt that the provision of the most perfect description of life-boat would be comparatively valueless. They are happy to say, however, that the crews of the life-boats continue to place so much confidence in them, that occasionally it is actually difficult to repress the eagerness with which men rush forward to man the boats.

The year 1869 will be memorable in many respects, in the history of The Royal National Life-boat Institution; but in no way more so than in the gratifying fact, that it succeeded during the twelve months

by its life-boats, with the liberal rewards it offers to fishermen and others, to persevere in their perilous efforts to save life, in rescuing one thousand two hundred and thirty-one lives from wreck! The storms of the year were unusually severe, and shipwrecks as an inevitable result, most numerous; yet the noble and successful efforts to save life on these occasions stood forth as successful examples, encouraging the Institution to pursue with unabated assiduity the path which Providence had clearly marked out for it;—leading, as it does, to results which have excited the admiration of the world at large!

The life-boat services, as usual, have varied much in character. Some had been performed in fierce gales of wind during day; others amidst thunder storms, with the midnight clouds rent by lightning, but the same glorious result has followed them all in freightage of living men saved from an appalling death by shipwreck. And another remarkable fact also which can be recorded with this glorious work is that all these great services were accomplished last year without the sacrifice of a single life amongst the brave and determined men who work our Life-boat Fleet, often at such apparently fearful risk, that no impulse less stirring than the sight of perishing fellow-creatures could have nerved them to their work.

The Institution, as here recorded, during the same period, also contributed to the saving of a considerable amount of valuable property. No less than thirty-three ships have been saved from destruction by the life-boats, which had been called to them by signal, and which had sometimes remained for hours together by the distressed vessels, thereby encouraging their crews to renewed and successful efforts against the tempest.

A consideration of the circumstances under which a large number of vessels are lost, such as, by collision with each other, by foundering at a distance from the land, by being driven ashore amidst unapproachable rocks, and by grounding on outlying banks, or on parts of the coast far from any Life-boat Station, and frequently in the dark hours of the night, leaves no room for hope that any winter can pass without the loss of many lives on and around our shores. Nevertheless, there can be little doubt that the present average number may be still further diminished by more stringent measures being adopted to prevent the sailing of *unseaworthy*, *ill-found*, and *half-manned ships*, and also by other preventative measures. An appropriate allusion has been made in the Annual Report to the continued efforts of the Board of Trade, in maintaining and extending the rocket apparatus on the coast of the United Kingdom. This agency contributes every year under the zealous management of the officers and men of the Coast Guard Service to the saving of hundreds of lives from shipwrecks in places where, from the presence of rocks and other impediments, it would be absolutely impracticable for life-boats to render efficient service.

The number of lives saved during the forty-six years from the establishment of the Institution in 1824, to the end of the year 1869, either by its life-boats or by special exertions for which it had granted rewards is as follows:—

| Year. | Lives Saved. | Year. | Lives Saved. | Year. | Lives Saved. |
|---|---|---|---|---|---|
| 1824 ... | 124 | 1840 ... | 353 | 1856 ... | 473 |
| 1825 ... | 218 | 1841 ... | 128 | 1857 ... | 374 |
| 1826 ... | 175 | 1842 ... | 276 | 1858 ... | 427 |
| 1827 ... | 163 | 1843 ... | 236 | 1859 ... | 499 |
| 1828 ... | 301 | 1844 ... | 193 | 1860 ... | 455 |
| 1829 ... | 463 | 1845 ... | 235 | 1861 ... | 424 |
| 1830 ... | 372 | 1846 ... | 134 | 1862 ... | 574 |
| 1831 ... | 287 | 1847 ... | 157 | 1863 ... | 714 |
| 1832 ... | 310 | 1848 ... | 123 | 1864 ... | 698 |
| 1833 ... | 449 | 1849 ... | 209 | 1865 ... | 714 |
| 1834 ... | 214 | 1850 ... | 470 | 1866 ... | 921 |
| 1835 ... | 364 | 1851 ... | 230 | 1867 ... | 1086 |
| 1836 ... | 225 | 1852 ... | 773 | 1868 ... | 862 |
| 1837 ... | 272 | 1853 ... | 678 | 1869 ... | 1231 |
| 1838 ... | 456 | 1854 ... | 355 | | |
| 1839 ... | 279 | 1855 ... | 406 | Total | 19,080 |

Who can contemplate this large multitude—nineteen thousand persons saved from death by shipwreck—without feeling that a great work has been done, without feeling a desire to perpetuate and extend services which have resulted in so much benefit to thousands of our fellow creatures? A full summary was given in the report of the cases in which honorary and other rewards of the Institution had been voted last year, a most interesting record in every way. During the past year fourteen silver medals, twenty-four votes of thanks inscribed on vellum and parchment, and £2705 had been granted for saving the lives of 1,231 persons by life-boats, shore-boats, and fishing boats, and other means on the coasts and outlying banks of the United Kingdom. The Committee had received the prompt and cordial co-operation of the Lords Commissioners of the Admiralty, Captain G. O. Willes, R.N., C.B., and of the officers and men of the Coastguard Service, to whom the best thanks of the Institution were thus again cordially rendered. Since the formation of the Society, it had expended on its life-boat establishments and other means of saving life from shipwreck £240,000, and had awarded 90 gold and 811 silver medals for saving life, besides pecuniary rewards amounting in all to £32,300.

The Committee in their report make suitable acknowledgment of the co-operation they continue to receive from the Local Branch Committees, which constitute so important a portion of its several life-boat establishments, and they acknowledge also the valuable and gratuitous services of the zealous honorary secretaries of those committees.

The total receipts during the year 1869 amounts to £40,409 15s. 3d., and the committee express themselves grateful to be able again to announce that of this sum no less than £12,177 0s. 4d. were special gifts to defray the cost of nineteen life-boats. We must give this noble list as it stands in the report.

| | £ | s. | d. |
|---|---|---|---|
| West Hartlepool—Ancient Order of Foresters ... ... ... | 640 | 0 | 0 |
| Wells' Penny Readings—Life-Boat Funds ... ... ... ... | 500 | 0 | 0 |
| Corton—Mrs. George Davis ... ... ... ... ... ... ... | 620 | 0 | 0 |
| Lowestoft No. 2—Miss Leicester ... ... ... ... ... ... | 420 | 0 | 0 |
| Southwold No. 1—Members of the London Coal Exchange | 703 | 10 | 0 |
| Alderney—The Right Honourable the Earl of Strafford ... | 405 | 0 | 0 |
| Sidmouth—Mrs. Rimmington... ... ... ... ... ... ... | 420 | 0 | 0 |
| Salcombe—Richard Durent, Esq. ... ... ... ... ... ... | 640 | 0 | 0 |
| Mevagissey—Sir Robert N. E. Hamilton, Bart., K.C.B., and Friends ... ... ... ... ... ... ... ... ... ... | 326 | 1 | 0 |
| Port Isaac—Richard Thornton West, Esq., and Mrs. Richard Thornton West ... ... ... ... ... ... ... | 700 | 0 | 0 |
| Clovelly—Mrs. Boetefeur... ... ... ... ... ... ... ... | 700 | 0 | 0 |
| Solva—A Lady in memory of her husband the late Captain C. R. E., R.N. ... ... ... ... ... ... ... ... ... | 700 | 0 | 0 |
| St. Justinian--The Right Honourable the Earl of Dartmouth and his Tenantry ... ... ... ... ... ... ... | 420 | 0 | 0 |
| Fishguard No. 2—Worcester Life-Boat Fund ... ... ... | 230 | 0 | 0 |
| Abersoch—Robert Burns, Esq., D.L., through the Manchester Branch ... ... ... ... ... ... ... ... ... | 672 | 5 | 0 |
| Isle of Whithorn—A Lady per N. Griffith, Esq.... ... ... | 620 | 0 | 0 |
| Isle of Arran—Anonymous ... ... ... ... ... ... ... | 1000 | 0 | 0 |
| Ardrossan, N.B.—Peter Reid, Esq.... ... ... ... ... ... | 1050 | 0 | 0 |
| Montrose, N.B.—Mincing Lane Life-boat Fund ... ... ... | 1305 | 4 | 4 |

Since the last report the Institution has received many other gratifying donations, and particularly from ladies, who had always been foremost in liberality and ably seconding the efforts of the National Life-boat Institution.

The committee record with deep regret the deaths of several valued friends of the Institution during the past year, and they particularly refer to the Marquis of Westminster, K.G., the Earl of Derby, K.G., and also to their late valued colleague Sir William Bowles, K.C.B., Admiral of the Fleet, who was from its first establishment a firm and liberal supporter of the Institution, as well as to Alex. Boetefeur, Esq., one of the largest benefactors.

Thirty-two legacies have been bequeathed to the Institution during the past twelve months.

During the past year £13,469 7s. 1d. had been expended on additional life-boats, transporting carriages, boat-houses, and necessary gear; £6,809 2s. on the expenses of repairs, painting, refitting, etc.; and £7,123 9s. 3d. in rewards for services to shipwrecked crews —making altogether including liabilities, a sum amounting to £4,089 12s. 10d. for life-boat stations now in course of formation, and with other expenses a total of £34,309 0s. 9d.

The items of receipt and expenditure were fully detailed in the financial statement annexed to the report audited by a public accountant.

In conclusion, we would remind the friends of the Institution of

this noble life-saving fleet, now in possession of 220 life-boats, requiring constant supervision to accomplish successfully the great mission in hand, needs the unceasing sympathy and support of the public, and we feel assured that these will not be withheld from the Institution so long as its committee are enabled to give, as on the present occasion, a satisfactory account of their stewardship!

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## The Colony of Queensland

### *And some history of the alleged Slave Trade in the South Seas.*

In the debate in the House of Commons, June 28th last, Mr. P. Taylor called attention to the manner in which the supply of labour to our great colony of Queensland is at present furnished, through immigration from the South Sea Islands, expressing himself thus:—My object is to prevent the idea of Queensland being associated with a revival of the slave trade. To show that the territory of Queensland is not an unimportant, but, on the contrary, one of the most extensive of the British colonies, I may mention that its area is nearly double that of Canada; that it is one-half larger than England, Wales, Scotland, Ireland and France added together; and that gold, copper, and coal mines have been already discovered in several districts of Queensland. The climate is well fitted for the European constitution. In this magnificent country there has sprung up within the last seven or eight years a system of immigration from the neighbouring South Sea Islands, to supply the wants of labour in Queensland.

The evils of that system were admitted on all sides, and upon the recommendation of the Colonial Office an Act was passed to regulate that immigration of barbarians. No Act could render that immigration a desirable or a moral one. Under that system of immigration the evils of the middle passage are repeated. I brought this question before the late Government and the present one, and the hon. member for the Isle of Wight lately put a question to the Under Secretary to the Colonies. On this occasion we were assured that the serious attention of the Government would be paid to the matter; but up to the present, as far as I can understand, no active steps have been taken to do away with this disgraceful traffic. I have nothing to say against the Act passed by the Colonial legislature. I believe it contains some provisions against which nothing could be said. Probably it is as good an Act as could be passed under the circumstances; but it wants that specific element by which alone a successful system of emigration can be realized, namely, the establishment of a Government depot in these islands, so as to secure the emigrants every information necessary as regards the country to which they are to be brought, and as to the nature of the agreement into which they enter.

The Duke of Newcastle, writing in 1861 to Governor Sir G. Bowen,

having stated that the emigrants to the West Indies and the Mauritius were collected in India, under the direction of agents appointed and paid by the respective colonies, were received into depots at the port of departure, were subjected before embarkation to a medical examination, were informed where they were going, and made to understand the nature of the agreement, and, above all, that it was required that every body of males should be accompanied by a certain proportion of females, fixed at that time at twenty-five per cent., went on to say: "Wherever the emigration shall be set on foot, it will be your first duty to appoint an emigration agent for the colony at each port from which emigrants are to be obtained."

Now in the despatch of the Duke of Buckingham to Governor Sir George Bowen, dated 9th November, 1867, suggesting the principal points for an Act, no mention is made of such a condition. The only protection in this respect consists in the clause that the master of the vessel must produce a certificate signed by a "Consul, Missionary, or other known person," or that the agreement shall be overlooked, and that by the Government agent, to see that the immigrants understand the terms of the contract. The Bishop of Sydney, at the meeting,* February 8th, 1869, read a letter from Dr. Pattison, the Missionary Bishop of Milenesia, in which he stated his unqualified opinion, that the natives of the island were incapable of understanding the nature of a legal contract.

Now, Sir, this trade, as I have shown, wants that first element which would make it tolerable. I am far from saying, that even if this element was present the trade would have been a tolerable one. Notwithstanding the admirable regulations under which it was managed there were many who doubted whether it was not a great evil. I will read a memorial signed by John Small, Chief Justice of Hong Kong, and the Hon. James Whittall to Sir Richard Graves MacDonnell, Governor of Hong Kong. In regard to Coolie emigration it says: "We will give the Chinese Government credit for thoroughly good intentions, and we are anxious to admit that the letter of their legislation in connection with Coolie emigration is very near perfection. But we do not require to tell your Excellency that these very regulations, said to be designed to protect the Coolie against fraud and restraint, are with detestable ingenuity converted into meshes whereby to entrap him more securely. These regulations are of no utility whatever; they serve but to cast dust in the eyes of the world; they afford no protection to the Coolie. For the reputation of the colony, therefore, for the sake of example, and for the honour, in so far as it is given by your Excellency and to ourselves to uphold the name of the British flag, we call upon you to solemnly condemn, by Colonial Legislation, this trade in human bodies, which, bearing the impress of misery wherever it is carried on, culminates at our very gates into the hideous form of slavery." With respect to these Coolies there is a Government depot at the place from which and to which they are sent,

* Page 353, Volume 1869, *N.M.*

and yet this is how the Chief Justice of Hong Kong states that the trade had degenerated, even under these circumstances.

There is another charge I wish to make against this Bill. By the sixth clause the Government of Queensland seeks to legalize the traffic in coloured labourers by private persons, in a manner disallowed by the Home Government in the tropical dependencies of the empire. That is enacted which is contrary to what is elsewhere allowed under British dominion: the only parallel instance is that in which the Mauritius planter is allowed to send his agent to recruit Coolies in India, but this is done under the complete control of the government authorities both in India and the Mauritius.

Now this is not a new question to us. We have felt it our duty, as a country, to interfere in more than one case where our country was obtaining labour for this purpose. When the French resorted to the system of conveying free black labourers from Africa to the French colonies, a government officer was appointed to superintend the whole transaction, and see that the people were fairly treated. This was the counterpart of the Queensland system. Notwithstanding all the precautions of the French government, the traffic speedily developed into slavery, and the Emperor abolished it. There was another system to which the Queensland system might be compared. Natives of the South-Sea islands were transported to the cotton-fields of Peru. The English and French governments raised their hands against the traffic as being a slave trade. Now, Sir, to what has this traffic led? It has led to results which might have been anticipated. I must trouble the House with a few extracts. Of course it is not easy to get authentic information, but that accounts such as those I am about to read can be believed in the colony, is of itself a condemnation of the system.

"The account," says the *Sydney Herald* of October 9, 1868, "we have received, from authority not to be doubted, of the state of the natives of the South-Sea islands now in Queensland is extremely disheartening. We have no wish to raise fastidious objections against enterprises which promise national prosperity, but we cannot hesitate, especially in the light of past events, to declare that the condition of a large proportion of the coloured people is one of slavery, having no other characteristics distinct from it but that they have no local domestic ties, and that at a future period they may perhaps return to their native country. The evidences are too strong to be resisted, that many of them are inveigled into their positions by the most false representations, and that others are actually stolen from their native land. When it is considered that from £5 to £7* each are paid by the planters for islanders brought to the shores of Queensland, and that the countries from which they are brought are within a short voyage of the market to which they are transferred, can any one doubt that improper means are likely to be employed to lure them, or that they are actually seized and put on board without their own consent?"

* Mr. F. W. Chesson says in a letter in the *Daily News* of January 3rd: "At the outset Polynesians were openly sold in Queensland for £6 or £8 apiece."

And the same article went on: "From the Christian islands the people are enticed, not commonly stolen. They are brought by representations of food and wages which are rarely realized. From the other islands they are mostly brought by a species of constraint, and totally ignorant of the conditions of service. On the arrival of a vessel, if not clandestine, the immigration agent goes on board. He examines what are called agreements. These have been witnessed by some party more or less trustworthy—often totally unworthy of credit. The more intelligent find, that instead of being engaged for one year, the agreement shows three. They find, when they are carried up the country, that the food is utterly insufficient, and that the clothing, from the nature of their work, is quickly destroyed. Thus many of them in a state of nudity are seen working on the plantation. If complaints arise, it is supposed that they are taken to a magistrate. In reality, on some even of the best estates, coercion is exercised by the overseer. Flogging, irons, threats of shooting—such is the fare." And there is a particular case which I believe to be authentic. It stands upon authority which will be admitted to be reliable. Mr. Alfred Davidson, a well-known gentleman, says, in a letter dated Brisbane, 30th November: "I visited the prisoners last week (South-Sea islanders) sent from up country to prison for breach of contract. I found that a contract had been made through their native chief to work for 10s. a week for one year. No interpreter was employed in Queensland. The men knew nothing of a new contract here. They had to put their marks or names on paper for three years, for 2s. 6d. per week. The police magistrate did his best for the men, but the local magistracy overruled his views. Of course, none of them knew of the island contract, for there was no interpreter, and the men could not explain."

"Our correspondent," says the *Colonial Intelligencer*, "humanely interested himself in a girl named Mary, who, it was alleged, was carried off from the island of Tanna by an armed crew, as a ransom for her father. The latter was a chief, and having been made a prisoner by the crew, they refused to release him except in exchange for another native. 'His daughter was then dragged through the

And in another of the 7th, says: "I cannot better express my meaning than by asking you to reproduce the following advertisement, which appeared in a Queensland paper on the 26th of April, 1867:

"*Sugar Planters, Cotton Growers, and others.*—"Henry Ross Lewin, for many years engaged in trade in the South Sea islands, and practically acquainted with the language and habits of the natives, and for the last four years in the employment of Captain Towns, having brought the natives now on Townsvale plantation and superintended them during that time, begs to inform his friends and the public that he intends immediately visiting the South Sea islands, and will be happy to receive orders for the importation of natives to work on the cotton and sugar plantations now rapidly springing up in this colony. *Parties favouring H. R. L. with orders may rely upon having the very best and most serviceable natives to be had among the islands.* Henry Ross Lewin, opposite Donovan's Railway Hotel, Stanley-street, South Brisbane. H. R. L. particularly requires it to be known that he will be ready to start immediately to the islands, and intends continuing the trade if he finds it answer. *Terms, £7 each man.*"

water by men of her father's tribe, and thrown naked into the boat. On board she was given as a wife to one of the boat's crew, who is, I think, a bad fellow. This man is from a Christian island, but has been a sailor, and has another wife, to whom he has been married by the Missionary in his own island, where bigamy is a legal crime.'" The captain was afterwards charged with a criminal assault, of which he was acquitted, but I observe her evidence was rejected as being a heathen.

I find in the *Scotsman* of December, 1868, the following: "The last Australian mail brings news that there seems no good reason for doubting. At Mallicolo twenty-one natives were induced to lay down their war-clubs, and go below to have a look at the hold. They were not allowed to come up again. Their canoes were sent adrift, and the vessel stood out to sea; the wives of the kidnapped men swimming after her whilst their strength lasted, and, when they could no longer chase her, still sending wild wails along her felonious wake. At Matlow a large haul was made, but all except two managed to slip ashore in the night. So the ship cruised about until she had bagged more than one hundred islanders. Six, whom she took out of a canoe, she was compelled to restore, because, had she not done so, their chief would have rescued them by force. To punish the islanders who had mustered to prevent their countrymen from being carried into captivity, for their heinously presumptuous sin, however, the captain sent an armed boat along the shore to fire into the huts and sink as many canoes as it could get hold of. On the voyage to Brisbane there was much sea and other sickness aboard. When his luckless captives would not or could not eat, the captain, fearing that the sulks would deprive him of a considerable percentage of his 'imported cattle,' would stand over them and threaten to administer a tonic in the shape of a thick stick."

In last February a meeting* was held at Sydney to protest against this traffic. The Mayor of Sydney presided, and the bishop moved the first resolution. The Right Rev. speaker strongly denounced the traffic, and quoted the testimony of Bishop Pattison, who is now cruising among the islands, as to the misery it had occasioned. Another phase of the traffic is, that private individuals are trading in these natives from one part of the South Sea to another. An English adventurer establishes a plantation at Samoa or Fiji, and then stocks it with labourers obtained from neighbouring islands, under the commission of the Queensland Government. I think it must be admitted that there is no more excuse for Queensland than there would be for a man who shot another to say that he only pulled the trigger, and did not touch either the powder or the ball. When once, under the licence from Queensland, they get people on board, they may place them where they wish.

The Sydney correspondent of the *Times* says, writing on the 27th of February: "I believe I stated in my last something respecting the act

* A full account of this meeting appeared in our July and August numbers of last year's Volume.

of the supercargo of a vessel bound to Samoa, where that person had just established a plantation. By arrangement with the captain, sixty men and twenty or thirty young women were inveigled on board and forcibly detained at Samoa. A case has just come to the knowledge of the authorities here, and compelled them to put the law in force against the offenders. The captain of the *Young Australia*, and one of the crew, stand committed to take their trial for the murder of three natives of one of the New Hebrides group of islands. The supercargo, who is also implicated in the affair, has been caught at Melbourne, and is coming up. Briefly the particulars are as follows:—The vessel mentioned, chartered by a Sydney firm, sailed in September last, or thereabouts, with a cargo for Fiji. The cargo being discharged (so at present I understand the case), a raid was proposed among the New Hebrides islands for "Niggers," as the Polynesians are called, to work on the newly-established plantations at Fiji. The vessel was five weeks gone, and, when it returned, landed 235 natives, including six women, something like £1200 having been cleared by the transaction. The vessel returned to Sydney. While here, intelligence was received from Fiji, which was made known to the Government. It appears that, during that voyage, off the island of Palma three natives were forced on board, who, breaking open the hold in which they were confined, fought for their liberty, and were shot down and turned overboard, by command of the supercargo, and under the silent sanction of the captain. The vessel was just on the point of starting again from Sydney, on another expedition, when the captain was arrested.

I understand that a great many shippers are engaged in this traffic, which can be carried on respectably, under the endorsement of the Queensland Parliament. I had almost said of the British Government; but I hope we have not come yet to that. But it is not to be supposed that this wretched system does not provoke retaliation. I take the following extract from the correspondent of a New York paper, which appeared in the *Daily News*:—"It seems that some time ago Messrs. Stern, Smith, Strickland, Bates, and Pritchard, together with five white ladies and a child, settled in Tanna, upon some land which they had innocently purchased from Captain Ross Lewin. A report has now arrived that all of these unfortunate people have been massacred. Until, however, it is fully confirmed, people are naturally unwilling to give credit to so horrible a story. But the recent outrages by the Queensland slavers upon the Tanna natives lend an air of great probability to the report."

But now for Queensland itself. I have here a report by the Rev. J. P. Sunderland, who visited Queensland, and gave a report of what he saw and heard. He visited sugar plantations, where some 3000 or 4000 Polynesian labourers were employed, who had been taken from their homes by fraud. Ships went to the New Hebrides to "catch blackbirds," and they caught them by utter deceit for three years' engagements. He went to some of the best sugar plantations in Queensland, and remarks, that if there was anything like slavery that was. The natives were of different islands and different dialects, and

so were isolated in their new home. They were very scantily dressed. One would have nothing but a flannel shirt, another only a pair of trousers, and they had to dig with bare feet. They said to him, "Missa, we've been deceived: we were told we should have plenty of work, plenty of food, and at the end of twelve months should go back home. But we found we had to stop three years." He asked the planters what they did when the labourers fell ill. The reply was, "They often gammon to be ill, but we take a whip and tickle them up a bit, and then they soon get well."

Such was the humane process by which the islanders were to be raised in the scale of morality and civilization. One planter wrote to another, and said, "What can you supply me a hundred niggers for?" And no doubt, as long as it was found that £6 or £7 a head could be got for the natives, men would do anything to get them. Such is the state of things, as described by an eye-witness. I will read to the House, with its permission, a few passages from a letter which comes from the very spot itself, which describes in an extremely graphical manner one of those transactions. It is a letter addressed by the Rev. James McNair, a well-known missionary of the Scottish Reformed Presbyterian Church, of high character, and it is addressed to Commander Lambert, of the Australian squadron. (The letter described the alleged kidnapping of nine Erromangans by the schooner *Latona*.) The honourable gentleman then proceeded:—How is all this to be stopped? It is said that it is extremely difficult to prevent it; but I do not think there would be any difficulty in putting a stop to it at all. At the time when I first put a question to the late Under Secretary, I was called upon by a gentleman from the colony, one of the first who began the system of immigration, and he informed me that, in his opinion, the proposed Act was so stringent that it would put a stop to this traffic. Now I believe that if the Government insisted upon the establishment of a depôt under Government superintendence at every place from which the islanders were shipped, and a proper proportion of women likewise sent, that the expenses attendant upon these essential preliminaries would be sufficient to put a stop entirely to this unholy traffic.

At the very time when the late Government was sanctioning this traffic there was issued from the Board of Admiralty of that Government the most masterly denunciation of the whole affair; and I trust our Colonial Office will follow the Board of Admiralty of the late Government. I will read a few extracts from the correspondence between Mr. Romaine and the Colonial Office. That gentleman, writing from the Admiralty, says:—"My Lords desire me to refer you to the correspondence which took place between the Colonial Office and this department in 1863, relative to the kidnapping of Polynesians, to be employed on cotton plantations and other agricultural operations in Peru," and went on to say that "the trade of procuring labourers rapidly degenerated into slave-hunting and slave-trading, and that it was the belief of their lordships that these South Sea islanders were incapable of understanding the nature of a written contract with an

employer," and that none of them would "knowingly and willingly engage themselves to work far from their own country at all, or at any place even near their own home, for more than a few months. My Lords are also thoroughly impressed with the belief that whatever regulations may be made for the well-being and liberty of these people, on their being brought nominally within the reach of the laws and tribunals of Queensland, yet that no proper and efficient control can ever be exercised over the manner in which these people are obtained and placed on board ship. The task of their collection and shipment is, from the nature of the work, likely to fall into the hands of an unscrupulous and mercenary set, who, under pretence of persuading the natives into making engagements as labourers for a term of years, would not hesitate to commit acts of kidnapping, piracy, and murder. Entertaining these views, my Lords are unable to concur in any recommendation with regard to framing an Act of the Colonial legislature for the regulation of the introduction of these people into the colony."

Mr. Romaine wrote again to the Under Secretary of State, referring to the letter from which I have just quoted—"With reference to the letter from this department dated the 7th December last, on the subject of kidnapping of natives from the South Sea islands by vessels under the Chilian and Peruvian flags, I am commanded by my Lords Commissioners of the Admiralty to acquaint you, for the information of the Secretary of State for the Colonies, that, looking to the representations formerly made by this country and France as to the importation of South Sea islanders into Chili and Peru, and to the representations made by this country as to the importation of negroes from the west coast of Africa to the West Indies, and looking also to the probability that representation will be made by France on the deportation of South Sea islanders to serve as labourers in Queensland, their Lordships would suggest, that before the Colonial Office decide upon the question of Colonial legislation for the regulation of the traffic, the opinion of the Secretary of State for Foreign Affairs should be taken on the subject." I wish the opinion of the Secretary of State for Foreign Affairs had not only been taken, but had been followed.

The next thing that comes in these papers is a remonstrance from the French government, which is put off with a letter from the Colonial Office to the effect that Her Majesty's government had had occasion to consider the mode of repressing such outrages as occurred; that they would be glad to be furnished with the details of any cases that had come to the knowledge of the French government; concluding with the words—"At the same time, his Grace desires to point out that proceedings of this kind must be distinguished from an emigration of labourers which appears to be going on to some extent from some of the islands in the South Seas to Queensland, and in regard to which regulations for the benefit of immigrants have been suggested to the Governor of Queensland, in which colony some of these emigrants have arrived." I will trouble the House with but one extract more, from a letter of Mr. Murdock, of the Emigration Board.

He says—"Whether it is right as a general principle to permit the introduction of an inferior and uncivilized race into a British colony, so strongly deprecated in the Queensland memorial, is a question which I do not presume to discuss. As far as the emigrant is concerned it would be useless to deny that it may be attended with same disadvantages; but that on the whole, a race of so low a type as natives of the New Hebrides must derive great benefit from being brought in contact with a purer morality and a higher civilization cannot be questioned." I am extremely loth to place myself in conflict with so great and distinguished an authority as this gentleman is. But I should think that the experience, as well as the theory, of history is against him. If there was one thing better founded than another with regard to colonization of this kind, it is, that nothing but demoralization can ensue under such circumstances.

There is one other point in regard to the morality in the islands from which those savages are taken. A writer quoted in the *Colonial Intelligencer* says—speaking of contracts for three years—"This may be very well if all we have to consider is the development of Queensland. But are we to overlook the effect on the islands where civilization is making such satisfactory progress? As a rule, they do not contain a surplus of population. If fifty or sixty natives are abstracted from these little communities they are the best—the workers; and what are left? Women, children, old men, and good for nothings. During the absence of these braves, their wives, where there are any, despairing of their return, become the wives of other men, and so the family tie is completely broken up. At home, Europe has taken thought for their religious and secular instruction; but this must all be relinquished in Queensland."

I would venture to impress one other consideration upon the House, and that is this. We consider ourselves a moral and practical people, and especially a colonizing people. Now I say we do our practical tendencies no justice to encourage such a system as this, and we have the means to make the dependency rich, as well as morally healthy. We have a surplus population, and pauperism rising and bubbling up to our very lips, and we have philanthropists declaring that our utmost power is unable to grapple with it. Can we not bring these two things together? Can we not send our surplus population to Queensland? Can we not do better than demoralize both? I call upon the country to put a stop to this infamous traffic, which is dangerous to our international relations with foreign countries; which is sure in the long run to destroy the prosperity of the colony; which is ruining the prospects, and turning into slaves the wretched men who are sent there; and which is frustrating all the efforts made by our missionaries for the civilization of these islands. The hon. gentleman, in conclusion, asked the Under Secretary of State for the Colonies whether his attention had been called to the great dissatisfaction prevailing in Queensland in regard to the system of importation of South Sea islanders into that colony; whether he was aware that this importation was described as practically no better than a legalized slave trade, and that

the natives were, in many cases, inveigled on board under false pretences; and whether he would lay on the table any correspondence on the subject.

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[One effect has already appeared of this kind of work in the following account of a tragedy, the vague report of which reached our papers in January last. It is from the *Sydney Herald* of the 27th of November.]

*Murder of Captain Blackett and Six of the Crew of the Barque Moaroa.*

(Literal translation from the *Messager de Tahiti*.)

Papeete, October 2, 1869.

A vessel of the Protectorate has just been the theatre of a fearful drama, of which we cannot give a better account than publishing the report of the mate who has brought back the ship. The *Moaroa*, bought by Mr. Steward, left Atimaono some months ago, with a cargo of cotton for Auckland, and she was to return with native labourers for the station.

It was in the latter part of the ship that Captain Blackett and a portion of his crew met with their frightful death.

A widow and two little children, who were much beloved by many friends, have been left behind at Papeete by the unfortunate captain. A lively sympathy is consequently felt for these interesting victims whom this fearful disaster has deprived of all means of support.

The following is an extract from the report of the mate:—

"The men of the watch were aft busy preparing planks to make a partition between the hatchway and the poop, when all of a sudden, and without any warning (I had, however, noticed a boy steal a knife from one of our men, and I then begged the captain and Mons. Lattin to come aft). All of a sudden, as I said, the Kanakas rushed aft and attacked my watch. I was then near the door of my cabin, whence I saw a Kanaka kill Mons. Lattin with the blow of an axe; the latter was then near the main rigging. I then seized a carbine and ran to help the captain, but it was too late; he had received a stab in the back, and another in the body, and had fallen quite dead close to the door of the cabin. I sent a man below who had been very dangerously stabbed in the back. Besides the stab, the captain had received a frightful blow from an axe. The axe was stolen by one of the natives from a case of tools which happened to be on deck.

At 6 a.m the starboard watch was attacked forward, but having four old cutlasses, which I put there overnight, they defended themselves, and the entrance to the forecastle being so narrow, only allowing passage for one man at a time, the Kanakas discontinued attacking them.

At 9 a.m. two of the starboard watch succeeded in making their way to us by detaching the planks of the partition, and as I held open the door of the cabin leading to the 'tween deck, we saw them coming; they told me that the others would not be long in coming also, which

turned out to be true. I had then five more men, but hardly any arms, our long cavalry sabres being of little use in a hand-to-hand conflict.

"Towards 11 o'clock the mate insisted, in spite of me, on calling for the interpreter, who was at that time bound by the Kanakas in the cabin on deck. I warned him several times that the natives had got possession of the interpreter's double-barrelled gun, and that it was loaded, but he paid not the slightest attention to it, and was killed by a Kanaka with this same gun. He fell stone dead, the ball entered the right shoulder after having struck the wood which surrounded the skylight, and came out about four inches from the other side of the heart. When the Kanakas saw him fall, they gave a diabolical yell on deck. I then ceased firing, thinking that in doing so the Kanakas would regain confidence, and I should be able to take them unawares, but there were too many on deck, and they continued to laugh and yell, thinking, no doubt, of the quantity of tobacco and stuffs which the captain had shown them, and which they reckoned upon seizing in a short time.

"I was determined to retake the vessel, but it was not so easy with two guns, and a revolver which would not go off. Then I decided on making a desperate effort; it was to blow up the deck amidships, and in the midst of the confusion which would follow, to make a rush across the smoke and retake the vessel. We had got from the three-masted vessel, *Annie*, 45 boxes (in tin), each containing half-a-pound of powder, I poured out 34 in a little empty barrel, and after having placed mats and sail-cloth below it to protect the 'tween decks, I, with six other tins, laid a train from the barrel to the main passage (gran panneau) to the deck (faux pont).

"I then gave orders for all to go as far aft as possible, because from there they could all reach the deck immediately after the explosion, and because I did not know myself what would happen to me from being so near. But I was confident, and never so calm in my life. After having seen the men in safety, and offered a short prayer for my wife and children, I set fire to the train, throwing myself down at the same time on the 'tween deck. The explosion followed immediately, and I was nearly stifled with the smoke. I then went on deck, where I found the men who had got there before me, as also the interpreter, who had been freed by his wife. I did not see a single Kanaka, but the sea was covered with black heads making for the island. My first care was to send two men down between decks to put out the fire, and with the others I got up all the rigging which was dragging overboard, the natives trying meantime to reboard with knives and other arms. Thank God, the ship was completely in our hands, and nothing had taken fire with the exception of the sailcloth, which had been placed below the powder barrels, and was completely extinguished by two buckets of water. I sounded the pumps immediately afterwards, and as we had not pumped since 4 a.m., and as there were only two feet water in the hold—not more than we usually made in the same time—I considered the ship was not materially injured by the explosion, although she shook like an earthquake.

"I went below to see the state of things. The forecastle was partly destroyed, but there was hardly any damage in the after cabin. All the damage which had been done to it was caused by the oars with which the natives had attacked us through the skylight. The chronometer appeared to be going well. The ship watch was broken and entirely done for, the thermometer was broken, and the aneroid on the ground with the glass broken. I witnessed other breakages, etc., which I need not particularise. At noon we took the sun, and hoisted the flag half-mast. I think that all the natives got ashore at Byron's island, with the exception of two women who remained on board to go to Tahiti.

"I omitted to say that our boats astern were carried off by the natives whilst we were blockaded in the cabin.

"Sunday, July 18.—Started with calms, and finished the day with light breezes. At 1 o'clock we pumped the ship, and commenced cleaning the deck. Underneath the things used by the natives in barricading the skylight, and on the port side, close to the cabin door, was the captain, whose head only was visible. It took me a long time to get him out, having only five men fit to work. The captain was literally covered with wounds, and the left side of his face almost entirely gone. We placed him on a mat, and, after having cleaned the deck and repaired the rigging, and looked after the wounded, I sent men to wrap the captain and lieutenant (mate) in a new mat. Then, after having affixed fifty bricks to each, and wrapped them in flags, at 5 o'clock, as the sun was setting, we offered up prayers for the dead—all being present, weeping like children—and launched them into the deep.

"Having performed our duties to the dead, I thought of the survivors, and the safety of the ship. I found that the deck between the fore and after hatches had risen about nine inches, and that the planks had been completely torn away on the starboard side. There were several other breakages, but we managed to make the voyage to Tahiti under small sails. Having on board a large old sail, I cut it up in small pieces and nailed them on those parts of the deck which were open, having previously tarred them to prevent the water coming in. All the stancheons had fallen. We put them in place again, and I hope, with the repairs we shall be able to make, that I shall succeed in taking the vessel to Atimaono."

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## ROGERS'S LIFE-SAVING FROM WRECK APPARATUS.

Robertsbridge, Sussex, March 23rd, 1870.

SIR,—I give you many thanks for your kind notice in the *Nautical Magazine* of February last, and trust the opinions I have since had the pleasure to lay before you, and the copy of paper I read at the "Royal United Service Institution," is such that I can gain your further

interest to an invention that is looked upon as one likely to be useful in life-saving, and which I feel impelled to go on with as a duty. I have devoted now nearly ten years to this matter, and gone so nearly the end of my means—that I beg to enclose a copy of the wishes of many friends to assist me in the undertaking, and if you would kindly allow it to appear in your very valuable and practical Magazine for April, I shall ever esteem it as a favour. Again, giving you many thanks, I am, Sir, yours most obediently,

JOHN B. ROGERS,
Inventor of the Projectile Anchor, etc.

*To the Editor of the Nautical Magazine.*

[A statement of the wishes, here alluded to, appears on the second page of the wrapper; and we propose in our next number to have a full consideration of this subject, which our limited space obliges us at present to defer.—ED.]

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## INVENTION OF TORPEDOS.

February 4th, 1870.

DEAR SIR,—It is very pleasant to read in the *Nautical* (a very old friend of mine) that good and humane deeds are being recognised and recompensed both in our own country and in British America,—I allude to the testimonial so nobly earned, and so justly bestowed on Mr. Tinning, for his gallant conduct on the lake of Ontario, in rescuing the crews of *four* vessels from death! Also it is most gratifying that the First Lord of the Admiralty has lately done honour to himself and the Naval Service, in employing his power to reward, with promotion, the important medical services of Mr. Godfrey Goodman at the Jamaica Hospital, as stated in the *Nautical* of the 1st instant.

These facts are really worthy a record in a journal like the *Nautical*, mainly devoted, as it has been for many years, to the interests of humanity. It is not, however, so delightful to find therein a notice of the invention of a horrible torpedo, the joint production of an Austrian and an Englishman. It is impossible to wish them success in bringing to completion so diabolical a work, and surely such infernal ingenuity should be discouraged and frowned down by every Christian government. What would be said of any fabrication of iron claws to be fastened on the hands of pugilists, in order to give any member of that redoubtable fraternity the advantage over his antagonist? Would not the execrable inventor be condemned in every decent society?—and why should national governments be pardoned the abuse of natural science by the application of such horrible engines in war? Besides all such employment of secret means of destruction tends to cowardice: that is not fair fight nor honourable conflict, when a vessel is attacked in the dark by an unseen torpedo. It is a *coward's* trick,

a *dastard's* stratagem. True bravery and genuine patriotism would be as much ashamed of such scandalous war engines as a high spirited rival would be of destroying his adversary by the poisoner's poison, or the assassin's dagger,

That an *Englishman's* name should be mixed up with any invention so disgraceful to humanity, and so abhorring to every sentiment of moral courage and manly resolution, is indeed a most painful fact; let us hope it is an isolated one, of which the present example will live to repent—and be ashamed. I remain, dear Sir, yours faithfully,

AN ADMIRER OF TRUE COURAGE.

*To the Editor of the Nautical Magazine.*

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## RETIRED PAY, *according to Mr. Childers' recent Scheme.*

THE Scale of Retired Pay, according to age and service, to be as follows for Navigating Officers, Inspectors of Machinery and Chief Engineers, Chaplains, Naval Instructors, Medical Officers, and Paymasters.

An addition to be made as specified for each full year of additional sea service, or its equivalent, but the same not to exceed five years, and a deduction to be made for each full year wanting to complete the periods specified, but the same not to exceed ten years.

| Age. | Retired Pay. | Sea or Harbour Service, or its Equivalent in Half-pay Time. | Addition or Deduction. | Age. | Retired Pay. | Sea or Harbour Service, or its Equivalent in Half-pay Time. | Addition or Deduction. |
|---|---|---|---|---|---|---|---|
| | £. | YEARS. | £. | | £. | YEARS. | £. |
| 60 | 450 | 30 | 10 | 49 | 335 | 24 | 10 |
| 59 | 440 | 29 | 10 | 48 | 320 | 24 | 10 |
| 58 | 430 | 29 | 10 | 47 | 305 | 23 | 10 |
| 57 | 420 | 28 | 10 | 46 | 290 | 23 | 10 |
| 56 | 410 | 28 | 10 | 45 | 275 | 22 | 10 |
| 55 | 400 | 27 | 10 | 44 | 260 | 22 | 10 |
| 54 | 390 | 27 | 10 | 43 | 245 | 21 | 10 |
| 53 | 380 | 26 | 10 | 42 | 230 | 21 | 10 |
| 52 | 370 | 26 | 10 | 41 | 215 | 20 | 10 |
| 51 | 360 | 25 | 10 | 40 | 200 | 20 | 10 |
| 50 | 350 | 25 | 10 | | | | |

The Scale of Retired Pay, according to age and service, to be as follows, for Flag Officers, Captains, Commanders, and Lieutenants. An addition to be made, as specified, for each full year of additional sea service or its equivalent, but the same not to exceed five years; and a deduction to be made for each full year wanting to complete the periods specified, but the same not to exceed ten years:—

| Age. | Retired Pay. | Sea or Harbour Service, or its Equivalent in Half-pay Time. | Addition or Deduction. | Age. | Retired Pay. | Sea or Harbour Service, or its Equivalent in Half-pay Time. | Addition or Deduction. |
|---|---|---|---|---|---|---|---|
| | £. | YEARS. | £. | | £. | YEARS. | £. |
| Admirals..... | 850 | 30 | 20 | Captains, Commanders, and Lieutenants: | | | |
| V.-Admirals . | 725 | 29 | 15 | | | | |
| R.-Admirals . | 600 | 27 | 10 | | | | |
| Captains, Commanders, and Lieutenants: | | | | At 51 ..... | 465 | 22 | 10 |
| | | | | 50 ..... | 450 | 22 | 10 |
| | | | | 49 ..... | 425 | 21 | 10 |
| At 60 ..... | 600 | 27 | 10 | 48 ..... | 400 | 21 | 10 |
| 59 ..... | 585 | 26 | 10 | 47 ..... | 375 | 20 | 10 |
| 58 ..... | 570 | 26 | 10 | 46 ..... | 350 | 20 | 10 |
| 57 ..... | 555 | 25 | 10 | 45 ..... | 325 | 19 | 10 |
| 56 ..... | 540 | 25 | 10 | 44 ..... | 300 | 19 | 10 |
| 55 ..... | 525 | 24 | 10 | 43 ..... | 275 | 18 | 10 |
| 54 ..... | 510 | 24 | 10 | 42 ..... | 250 | 18 | 10 |
| 53 ..... | 495 | 23 | 10 | 41 ..... | 225 | 17 | 10 |
| 52 ..... | 480 | 23 | 10 | 40 ..... | 200 | 17 | 10 |

On the subject of retired pay Mr. Childers observed in his speech that—

"In the first place, we propose that there should be a universal compulsory retirement for all ranks, with in most instances the option of an earlier retirement. We propose that all the admirals of the fleet shall retire at the age of seventy, all admirals and vice-admirals at sixty-five, all rear-admirals at sixty, all captains at fifty-five, all commanders at fifty, and all lieutenants at forty-five; and we establish similar ages for the retirement of navigating and civilian officers. We propose also, that all officers who have not served for a certain time shall be compelled to retire—a flag officer after ten years' non-service, a captain after seven years' non-service, and a commander or lieutenant after five years' non-service.

"We likewise establish a proposed scale of retirement based on one with which my name was connected as chairman of the Committee which sat in 1867, and to which my colleagues as well as myself have given great consideration. The retirement we propose will depend less on good fortune and more on age and service than the present system does. I will not now state the details beyond this, that from the rank of lieutenant to that of captain in future officers shall be able to retire on a scale beginning at £200, and ending at not much less than £600. The scale will be published to-morrow. We also propose to simplify the extraordinarily complicated and confused rules of the sea service, which at present very few persons can understand. We also propose that there should be for all other officers than those I have named a uniform scale of retirement, based on service and age; and I would just say in passing that in calculating service it is part of that modification in respect to good fortune to which I have alluded that service on half-pay shall count as one-third of sea service."

# Nautical Notices.

## Particulars of Lights Recently Established.

(Continued from page 159.)

| Name. | Place. | Position. | F. or R. | Ht. in Ft. | Dist seen Mls | [Remarks, etc. Bearings Magnetic.] |
|---|---|---|---|---|---|---|
| 24. France—N. Coast | Ruytingen Light | Parted | | | | |
| 25. Martaban Gulf | Burmah | Krishna Shoal | F. | 60 | 14 | Est. January, 1869. Screw pile in 3 fathoms. |
| | China Buckeer | Buckeer River | R. | ... | 15 | Est. Jan., 1869. Once a minute. Screw pile. |
| | E. Grove | Rangoon River | F. | ... | 10 | Est. January, 1869. See Notices 25a, 25b, 25c. |
| 26. Mediterran. | Egypt Coast | Rosetta | R. | 175 | ... | Est. 1st May, 1870. See Notice 26a. |
| | | Brulos | F. | 176 | ... | Est. 1st May, 1870. See Notice 26b. |
| | | Damietta | R. | 176 | ... | Est. 1st May, 1870. Every minute. See Notice 26c. |
| | | Port Said | F.fl | ... | ... | Est. 1st May, 1870. Every 3 secs. See Notice 26d. |
| 27. England | East Coast | Lowestoft Harbour | ... | ... | ... | Buoys. |
| 28. Japan | Yedo Bay | Yokohama Bay | F. | 36 | 10 | Light vessel off Mandarin Bluff. See Notice 28. |
| 29. Mediterran. | Adriatic | GaliolaRock | F.fl | 71 | 13 | Est. 1st March, 1870. Every half minute. See Notice 29a. |
| | Curzola Harbour | Fort next to Harbour | ... | ... | ... | A Light. See Notice 29b. |
| | Algeria | Algiers Mole Head | ... | ... | ... | Est. 15th March, 1870. Alterations. See Notice 29c. |
| | Spain | Cape Creux | F. | ... | ... | See Notice 29d. |
| 30. Eastern Archipelago | Java Sea | N. Watcher | R. | 159 | 20 | Once a minute. |
| Banka Strait | Lucipara Channel | ... | F. | 28 | 10 | See Notice 30a. |
| Australia | Port Phillip | Schnapper Point | ... | 50 | 10 | Est. 1st Jan., 1870. See Notice 30b. |
| 31. U. States | ... | Galveston | F. | 47 | 11 | Light vessel inside the bar. |
| Bay of Fundy | Point Lepreau | ... | ... | ... | ... | Fog whistle est. See Notice 31a. |

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

No. 25*a*.—Position of the lighthouse, lat. 15° 36′ 30″ N., long. 95° 35′ East from Greenwich.

In foggy weather a bell will be sounded *every half minute*.

Note :—This light is intended to enable vessels to avoid the danger of the Baragou flat and Krishna shoal; in approaching from the westward, a vessel should keep in not less than 7 fathoms, until the light bears N.W., and then shape a course, N.E. by N. or N.E. (according to set of tide), for China Buckeer light. Vessels from the northward must not get into less than 6 fathoms, or bring the light to bear southward of S.W. by W. ½ W. No vessel should approach within 5 miles of the lighthouse.

No. 25*b*.—The tower is situated on the land of China Buckeer, close to high-water mark; the lower part of the tower, seen against the dark trees, is painted white; it is in lat. 16° 19′ 30″ N., long. 96° 12′ E.

No. 25*c*.—*Fixed Light at Eastern Grove.*—The light is on the east side of the entrance of Rangoon river, visible between the bearings North and N.E. by E. ½ E.

Position of the tower, lat. 16° 29′ N., long. 96° 26′ 30″ East.

*Directions.*—Steer so as to make China Buckeer light between the bearings of N. by E. and W. by N., and when Eastern Grove light bears N.N.E. ½ E. the China Buckeer light may be brought to bear West, which position is on the pilot station. Vessels should anchor until daylight or until a pilot is obtained.

[*All Bearings are Magnetic. Variation* 2° *Easterly in* 1870.]

No. 26*a*.—*Revolving Light at Rosetta.*—The light will show a *red and white* face alternately at intervals of *six seconds.*

The lantern, painted black, is supported on three iron columns, painted white. Position, lat. 31° 29′ 30″ N., long. 30° 19′ East from Greenwich.

Mariners are cautioned not to approach this light too closely, as the sands extend 2 miles northward from it, and an indraught is occasionally experienced.

No. 26*b*.—The lantern, painted red, is supported on three iron columns, which are painted as follows:—centre column, red; eastern column, white; western column, black.

Position, lat. 31° 36′ N., long. 31° 9′ E.

No. 26*c*.—The lantern, painted white, is supported on three iron columns, painted in alternate black and white horizontal bands, 10 feet wide.

Position, lat. 31° 31′ 30″ N., long. 31° 51′ E.

Mariners are cautioned not to approach this light too closely, as the sands extend 2 miles north-eastward from it, and an indraught is occasionally experienced.

No. 26*d*.—*Flashing Light at Port Said.*—The tower is built of cement and sand of a light grey colour.

No. 28.—The vessel exhibits a *fixed red* light, and has two masts, and carries a ball at the foremast head.

From the light-vessel, Treaty point bears S.W. ¾ S.; Mandarin bluff, S.W. by W.; and the mouth of the canal, W. ¼ N.

[*All Bearings are Magnetic. Variation* 2¼° *Westerly in* 1870.]

No. 29*a*.—The tower is 31 feet high, built of iron, on a stone base 33 feet above the rock, octagonal shaped, and painted white.

No. 29*b*.—The light is exhibited from the fort, at the point nearest the harbour of Curzola, visible nearly the whole length of the channel to the W.N.W. as well as from the eastward, and that the light hitherto shown from the extremity of the Grand mole has been discontinued.

No. 29*c*.—The light will be obscured from the direction of the red light on the North mole, to the bell buoy at the extremity of the mole in the course of construction, or through an angle of about 36 degrees.

*Directions.*—Vessels approaching the port from the northward, should, after sighting the red light on the North mole, steer South, keeping, at the least, a quarter of a mile to the eastward of the red light until the green light of the South mole is seen, in order to clear the extremity of the mole in construction, and then steer in between the lights. In passing in, the green light will be briefly obscured in the direction as above described.

29*d*.—The Spanish Government has given Notice, that a *fixed red* light will be exhibited from the lighthouse on Cape Creux during the repairs of the machinery of the fixed and flashing light.

No. 30*a*.—The vessel is painted yellow, with the words *Lucipara passage* on the sides, and has one mast with a black ball on the top. From the light vessel, Green point bears N.W. ⅗ N. 4·4 miles, Lucipara point, S. by W ½ W., and Lucipara island summit, S.E. ⅗ E. 9 miles.

No. 30*b*.—The present dioptric light at the end of the jetty would, at the same time, be replaced by a *red* light shown from an ordinary lantern, which in clear weather, should be seen from a distance of about 3 miles.

No. 31*a*.—During thick and foggy weather and snowstorms, the whistle will be sounded in each minute as follows,—a blast of *five seconds* duration, an interval of *five seconds*, then a second blast of the same duration, and then an interval of *forty-five seconds*.

The distance at which the whistle may be expected to be heard is:—In calm or moderate weather, 15 miles; in stormy weather, 5 to 8 miles; against the wind, 3 to 5 miles; with the wind, 20 miles.

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## No. 1.—Pilotage Papers from Hydrographic Notices.

### No. 40, 1869.—Pacific Ocean—Western Part.

The Santa Cruz islands and New Hebrides group, from letters and observations of Navigating Lieutenant Thomas Capel Tilly, R.N., of the Mission schooner *Southern Cross*.

[*All Bearings are Magnetic. Variation* 9° *Easterly in* 1869.]

*Santa Cruz Islands.* — Positions obtained agree fairly with those of D'Entrecasteaux. North point is in 10° 40′ S., 166° 0·5′ E., and N. point of Tinakula or Volcano island in 10° 23·5′ S., 165° 47·5′ E. In Captain Wilson's account of a low island lying S.S.W. from Volcano island, should be N.N.E., agreeing with the position of that now known as Nukapu; two others, stated as seen after "steering W. by S. about five leagues," would be Anologo and Nupani.

*Matema or Swallow Islands*, part of Santa Cruz group, are northward of the great island, and between 10° 4′ and 10° 22′ S., and 165° 39′ E. to 166° 19′ E., extending some forty-two miles W. by N. from Nimanu, the south-eastern of the group, to Nupani, the north-western; they are from 100 to 200 feet above the sea, dangerous from reefs, especially on their western or lee sides. Inhabitants boldly come off and barter mats, bows and arrows, for iron, sailing in their double canoes as far as Tucopia, about 180 miles S.E.

*Nimanu*, the south-eastern of the group, in lat. 10° 21′ S., long. 166° 17′ E., N.N.E. twenty-five miles from eastern high land of Santa Cruz; small, round, and bold, some 200 feet high; apparently deep water all round; a land slip, with probable landing on its lee side.

*Panavi*, the eastern of the group, lat. 10° 17′ S., long. 166° 19′ E., about four miles N. by E. ½ E. from Nimanu, similar to it in size and appearance, but not so high; well wooded. The W. side has a small bight, with a steep white beach, appearing to communicate with Lomlom, the next island, about three quarters of a mile distant.

*Lomlom*, about five miles long E.N.E. and W.S.W., one and a quarter

broad; from 150 to 200 feet high, forming, with another unknown island, a smooth water bay open to the north, with shores of rough beaches fringed with narrow reefs. Lomlom seems clear of dangers, except off its S.W. end, where a reef extends about S.S.W. for one mile and a half, then trending northward towards the second island; several rocky islets within its edge.

The second island is similar to Lomlom in size, four miles and a half north and less than one mile wide, and between 100 and 200 feet high; eastern side is bold; on its north-east side from a bluff begins an extensive coral reef, trending first N.W. about four miles to Nivluli, the next island (surrounding it), then reaching W.S.W. nearly thirteen miles. The villages of these islands must be inland, or on the eastern side facing the lagoon, as only one hut was seen from the sea.

*Nivluli* is about a mile from Lomlom, and a mile long N.W. and S.E., and 120 feet high. The reef extends close round its N.E. side, then turns W. and S.W. two miles, forming a bay with a low rock on the edge. There is a small round islet about thirty-five feet high half a mile within the reef.

*Pileni*, next westward of Nivluli three miles, a mile long N.W. and S.E., and about 100 feet high, has a village on its S.W. point. Pileni is outside the great lagoon, but surrounded by a reef, closing along its eastern side, and reaching about three-fourths of a mile to the south-west from its western shore. A deep water channel is between the main and the Pileni reefs.

*Sand Islet* is what it is called; small, about ten feet above water, no vegetation, and the natives resort to it only to fish. It stands on the W. side of an oval ring of coral, about a mile N.N.W. and S.S.E., similar to that of Pileni, and also without the main lagoon. It is the only instance of the group with the reef extending to windward of the land to which it is attached. A clear space of one mile and a half is between this reef and that of Pileni, and also a deep water channel between it and the edge of the main reef.

*The Great Reef.*—From the Sand islet the W. entrance of the main lagoon bears nearly S.W. six miles and a half. This extreme is in lat. 10° 14′ S., long. 166° E.; Tinakula bears S.W. ¼ W. seventeen miles from it, the eastern high land of Santa Cruz S. by E. ¾ E. twenty-eight miles, and Nukapu N. by W. ¾ W. seven miles. The reef here turns sharp round eastward, forming the north side of an entrance to the lagoon between West point and S.W. patch.

East of the S.W. patch, with an apparently deep water channel one mile and a half wide between them, is another narrow patch of coral nearly three miles long. Between this and the reef from Lomlom is a third patch. The channels on either side into the main lagoon appear deep, and seem to lead to a secure anchorage under the lee of the northern Lomlom island, the shore of which appeared to be beach, with villages near it. The interior of the main lagoon seems patchy.

The current sets S.W. on the north side of reef, with overfalls off its western point.

*Matema*, the only island on the southern side of the great reef, is midway between Lomlom and the West point, bearing W. by N. six miles from the S. extreme of the Lomlom reef. It is small, 100 feet high, inhabited (landing on its W. side), and surrounded by a reef extending about a third of a mile from the shore. A narrow passage appears between this island and the middle coral patch of the main reef.

*Nukapu* is N.W. of the Great reef, and W.N.W. about eight miles from the Sand islet; narrow, about 120 feet high, and nearly one mile N. by W. and S. by E., with a low termination to the Southward, where appeared villages; a reef surrounds it, closing on its eastern shore, but about one mile and a quarter from its western.

*Anologo and Nupani*, the western islands of the Matema group, are like Nukapu in size and shape; surrounded by an extensive reef, passing close to their eastern sides, but reaching out S.W. for nearly three miles from Anologo, the southern of the two.

Anologo is W. ¾ S. about seventeen miles from Nukapu, east and west about a mile long; nearly 120 feet high, and situated in the eastern angle of the reef surrounding the two islands.

Nupani is about two miles N.W. ½ N. from Anologo, the reef forming a bend between; it is about a mile long N. and S., and 120 feet high, the north point in lat. 10° 4′ S., long. 165° 40′ E. The reef closes the east and north sides of Nupani, from whence it trends westward for half a mile, then sweeps round to the southward and eastward for two miles and a half; it then stretches out to the S.W., forming a large and dangerous bend for smooth water nearly four miles between the horns. This S.W. angle of the reef which breaks is S. by W. three miles and a half from Nupani, S.W. two miles and three-quarters from Anologo, and in 10° 8′ S., 165° 39′ E. From this point the reef continues east two miles to its S.W. extreme, south one mile and a half from Anologo. The sea breaks heavily along this part of the reef.

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## NAUTICAL TOPICS OF THE DAY.

THE month of March must stand recorded as the most disastrous at sea of any that we have seen for a very long time. The events which we have to pass in review are so numerous that we scarcely know which to begin with, and not only are they numerous but the loss of life on the occasions of foundering from collision only is appalling beyond all former accounts. That direful event which stands on record to our disgrace from mere want of legislation about overloading (a subject we perceive at length taken up by the Government) was bad enough, but even that has been surpassed by recent disasters of the same nature but from different causes. And as public sympathy has been keenly awakened by this loss of life at sea, we shall first revert to the unhappy fate (all but we may say conceded by every one) of the *City of Boston*, a splendid staunch steamer of the Inman line, running between this country and the United States. Painful has been the suspense in many a bosom, occasioned by the non-appearance of this vessel on our shores. A cruel easterly wind, occasionally amounting to gales, has kept all accounts of her from us. We know that she left New York on the 25th of January, and also Halifax the 28th of the same month; and notwithstanding we have had arrivals of numerous wind-bound vessels detained at sea, none of them have yet cleared away suspicions in which the mystery of her fate is shrouded. Although she was due at Liverpool on the 6th of February, here we

are about fifty days after, approaching closely the end of March, and still she has not appeared.

In this state of suspense with hopes and fears alternately prevailing, we are by no means inclined to the latter. Still there are some very questionable passages in the reports, which day by day the public papers have promulgated. Thus on the 9th March, when fears *began* to prevail we find the following ominous passage concerning her in the *Daily News*:—"The propeller attached to the vessel is a new two flanged one fitted during her last visit to this port (New York) her original three flange propeller having been broken during her last voyage from Liverpool. Captain Brooks is of opinion that the strength of the new propeller would not be sufficient to enable her to *make headway* against the adverse winds which she must have encountered, and therefore the worst to be feared is that she has been driven out of her course; but he and other captains recently arrived, express confident opinions that she will ultimately reach Liverpool safely." So thinks Mr. Inman, who Mr. Shaw Lefevre informs us, proved that she was not overloaded, and still believes the vessel to be afloat. Still when we read Captain Brooks's opinion about this new propeller, and bear in mind that she left Halifax on the 28th of January, what must we think on reading the following which appears in the *Hants. Telegraph* as well as the *Daily News* of the 11th March:

Captain Bulmer, of the *Helene Marion*, arrived at Spithead in distress, from New York for Antwerp, states that he left New York on the same day as the *City of Boston* (s). On the night of 29th January met with a hurricane from S.E. to S.W., which, while hove to, took away his foretopmast and jibboom, although he had no sails set at the time; and his new sails were taken completely out of the gaskets, and blown away. Believes the *City of Boston* must have been in same hurricane.

When the opinion of Captain Brooks is considered in conjunction with the fact that the hurricane here alluded to (which there can be no doubt the *City of Boston* also encountered in the darkness of night, and in a sea stated to have been beset with ice),* now that above fifty days have elapsed since she was due at Liverpool, the questions, "has the *City of Boston* survived that hurricane, and is she now afloat," are surrounded by doubts which can only be removed by a cruel lapse of time. Hope tells us the vessel was staunch, that she was well stored with provision, but still with all the facts for and against that we can find doubts must predominate. Meanwhile here is the latest information concerning her from the *Daily News* of the 23rd March:

*City of Boston.*—The Inman Company's steamer *City of Durham*, which had been sent out specially a few weeks ago to search for the *City of Boston*, returned to Crookhaven late on Monday night after a fruitless cruize. When it became known on the Liverpool Exchange yesterday that the *City of Durham* had returned, and had brought no tidings of the missing steamer, many whose faith had been strong as

* *Daily Telegraph*, 18th March.

to her safety admitted that matters looked very gloomy indeed, although they still thought that a week or ten days might bring some news of the vessel. The *City of Durham* cruized as far as lat. 54°, long. 24°, and thence to lat. 45°, long. 30°. She sailed from Fayal on the 16th ultimo, bringing home the mails of the Channel squadron, then at the island, the vessels being the *Agincourt*, *Minotaur*, *Warrior*, and *Inconstant*. During the passage she spoke ten vessels, and when two hundred miles north of Fayal she passed a barque water-logged and abandoned. From Fayal up to lat. 47° she had strong southerly winds, and from thence favourable winds and calm weather up to her arrival at Crookhaven.

LET us now turn to another disaster of the sea, similar in effects of loss of life, and under circumstances peculiarly distressing from the manner in which it occurred.

No sooner were suspicions in agitation about the *City of Boston* than accounts reach us from Japan, of an accidental collision between the United States sloop of war *Oneida* and the Peninsular and Oriental steamer *Bombay*, resulting in the foundering of the former vessel with 120 souls on board. The account of this event we must give as it has appeared in the public prints.

The American papers of the 2nd ult. contain the following despatch, dated San Francisco, March 1:—"The ship *Benefactress* arrived from Yokohama, Japan, to-day. She brings full particulars of the loss of the United States steamer *Oneida*, which left Yokohama on the 23rd of January, homeward bound. The steamer left her anchorage about five o'clock in the afternoon, and the accident occurred at seven the same evening. The United States Minister visited her in the forenoon, and received the usual salute, and the guns were reloaded with the expectation of replying to a salute from a Russian gunboat to Mr. Delong. The salute, however, was not given, and the guns remained loaded.

"As the *Oneida* steamed out of the harbour the crews of the various vessels and men at work in the port gave cheers and wished her a happy voyage. On passing out of the harbour her fires were banked and steam blown off. While the officers were at dinner at about seven o'clock, the look-out man shouted 'steamer lights ahead,' and a midshipman gave the order to port helm. Everything seemed quiet on board the other steamer. This leads to the belief that she had not observed the *Oneida*, although her lights were burning brightly. The steamer, which proved to be the *Bombay*, of the Peninsular and Oriental line, came on and struck the *Oneida* on the starboard side, abaft the gangway, about half way between the main and mizen rigging. A hole was cut, through which the whole interior of the ship was visible. The binnacle wheel and rudder were carried away, and two men standing at the wheel were instantly killed. The *Bombay* did not stop after crashing through the *Oneida*, though the guns of the latter, which happened to be loaded, were almost instantly fired to attract her attention and bring her back.

"Orders were given to lower the boats, but only one life-boat was available, the others having been crushed. The life-boat was manned by Dr. Stoddard, the boatswain, and fifteen of the crew. Five guns were fired, but before the sixth could be discharged the *Oneida* sunk—within ten minutes after she was struck. None of those saved saw a man or heard a voice on board the *Bombay*. They report that when it became evident that there was no hope of saving the ship, the officers gathered round Captain Williams, and he was heard to say if the ship went down he would go with her. The life-boat was obliged to leave the sinking ship to avoid being swamped. After pulling about for a while, the crew of the life-boat, seeing none of the crew floating, not one of the 120 who went down, unwillingly bent their boat's head landward, about five miles distant.

"On landing, the natives kindly treated them, and they obtained the assistance of a guide, and started to walk to Yokohama, which they reached at daylight the next morning. The *Bombay* was immediately ordered to the scene of the wreck, and succeeded in saving thirty-nine men who had got into a cutter which floated when the ship went down. Several other vessels, one with Minister Delong on board, proceeded to the scene of the disaster during the day, but no more lives were saved. The Japanese government sent boats and apparatus to search for the wreck, and, if necessary, to buoy the spot. The passengers on board the *Bombay* were quite surprised when they heard the calamity that had befallen the vessel they had struck, but declare they neither heard any request from the *Oneida* to stay by them, nor minute guns fired. A naval court has been demanded by the captain of the *Bombay*. The officers and men of the *Oneida* numbered 176, only 56 of whom, including Dr. Stoddart and two junior officers, survive the disaster."

Another despatch, dated Yokohama, January 31 (viâ San Francisco, March 1), says:—"The most terrible accident and horrible exhibition of inhumanity known in the East, occurred about twenty miles down this coast at 6.30 o'clock on the evening of January 24. The United States steamer *Oneida*, homeward bound, collided with the British Peninsular and Oriental iron mail steamer *Bombay*, Captain Arthur Wellesley Eyre. The *Bombay* struck the *Oneida* on her starboard quarter, carrying away her poop decks, cutting off her whole stern, and running one of her timbers entirely through the bows of the *Bombay* at the water line. Three times the *Oneida* hailed the *Bombay* 'Ship ahoy!' 'Stand by!' 'You've cut us down!' blew her whistle and fired her guns, all of which the officers of the *Bombay* say they did not hear, though the guns were distinctly heard at this port, twenty miles away. The *Oneida* went down stern first, in about twenty fathoms water, with twenty officers and 150 men. The captain of the *Bombay* did not stop to rescue those on board, nor did he, upon his arrival here, report the accident or inform the authorities. The first known of the affair was the next morning, when Dr. Stoddart, the surgeon, with fifteen of the crew, arrived on foot. But two cutters were available, and the officers, almost to a man, refused to take them

while a man remained on board. Discipline was complete to the last. The sick were all being put into the boats, the officers remaining at their posts until the ship went down. The only United States government vessel in Japan being the storeship, Minister Delong was obliged to accept from the English, French, and Russian men-of-war, steamer, steam launches, cutters, etc., and in company with Colonel Shepard, Consul at Yeddo, and Mr. Farrington, proceeded to the scene of the disaster, where all in human power was, and is still, being done to rescue the sufferers and to recover the bodies of the lost."

In a telegram received by the Peninsular and Oriental Company it is stated that the captain of the *Bombay* is held to be free from blame for the collision, but that his certificate is suspended for six months, because he did not wait and render assistance to the *Oneida*. He was to leave for England at once.

It would appear that although the rules of the road for passing ships at sea exonerate the captain of the *Bombay* from blame, in producing this lamentable accident, it is still difficult to imagine a vessel, after being in collision with another, from which the latter sunk, it is difficult, we say, to conceive that the captain could not stop for a few minutes to ascertain if he could render assistance, in case it should be required. Such a course would at least be dictated by prudence and humanity. Had the *Bombay* done this it is not unlikely that the lamentable loss of life which resulted might have in a great measure been prevented. And again, to have suspended a certificate for six months, thus imputing blame, amounts almost to a formality, considering the heavy loss resulting from the accident.

A Washington despatch, in the New York papers of the 3rd March, states that the Navy Department of the United States Government is awaiting official reports of the collision between the *Oneida* and the *Bombay*, which are expected in due time from the surviving officers, before framing rules for a searching investigation into every circumstance connected with the accident. A great many relatives and friends of the *Oneida* are in Washington, and the occurrence has caused them the deepest grief. The *New York Tribune*, in referring to this disaster, says that for the honour of English manhood and seamanship, it most earnestly hopes that the captain of the steamer *Bombay* will prove less against him than the accounts represent him to be.

A later paper says much that ill accords with the *supposition* that no damage was done to the *Oneida*.

Additional information respecting the disastrous collision between the United States corvette *Oneida*, and the Peninsular and Oriental Company's steamer *Bombay* is supplied by the American papers. From Philadelphia we have extracts from a private letter of the surgeon of the *Oneida*, the only officer of that vessel who was saved out of the twelve who were dining at the time of the accident. He says it seemed to him as if "the whole side of the ship was coming bodily in on the dinner table." The *Bombay* was hailed and asked to stop, but she appeared to steam away as fast as she could. So great was the damage done that the writer came to the conclusion the vessel

would sink in a couple of minutes. Very shortly afterwards she went down.

In an article on the collision, written after publishing this narrative, the *New York Times* expresses itself in very strong terms against the captain of the *Bombay*. "We have a right," it says, "to demand justice against this man. That he can ever again be put in command of a ship seems impossible—but a severer punishment than this must be his portion. If he is allowed to escape, farewell to all good feeling between the naval services of America and England." There is no doubt that the whole matter must be more investigated.

AND then as if we had not had enough of such disasters, another collision occurs close to our doors, and this too we must chronicle with the events attending it.

The *Normandy* left Southampton Docks about a quarter of an hour before midnight on Wednesday, 16th ult., for Guernsey and Jersey, under the command of Captain Henry Beckford Harvey, with about thirty-five passengers, the total number of souls on board being estimated at sixty. The night was hazy, and the fog gradually thickened, and became very dense as the English coast was left behind. At 3.45 the steamer came into collision with a large screw steamer, which struck her abaft the starboard sponson. It was at once apparent that the *Normandy* was sinking, and Captain Harvey, who was on deck at the time of the accident, immediately gave orders to lower the boats, but of these two only, slung on the port side, were available, the large life-boat which was in the starboard slings having been smashed in the collision. "Ladies first," was the next order given by the gallant old captain, who, with the rest of his crew, appear to have acted with remarkable coolness and a regard for the safety of the passengers entrusted to their charge. Consequently the female passengers who were aft were huddled into the boats, most of them attired in nothing else but the clothes in which they had been sleeping, and as many of the other passengers as could be taken; all were put on board the other vessel, which proved to be the *Mary*, of Grimsby; but before the boats could return to their own ship she suddenly sank, about ten minutes after the collision.

Captain Harvey was last seen on the paddle-box bridge, and went down in the ship, as did also his chief mate, Mr. Ockleford, several of the crew, and passengers, Mr. Cox, the chief engineer, the other engineers, and firemen—one only of the latter, indeed, being all of the engine room staff saved. Captain Strannock, the commander of the *Mary*, thought his own vessel was sinking, and had ordered out the life-boats, and all was done so far as we can hear, to save life, but of course so brief a space of time elapsed between the collision and the sinking of the *Normandy* that but little means beyond those taken on board that vessel could be adopted with any successful result.

The *Mary*, whose cutwater is badly damaged, with both her bows stove in, remained about the spot for two or three hours, and then steamed slowly to Southampton, the nearest port where any substantial

assistance could be afforded in her crippled condition, and reached here about four o'clock in the afternoon in charge of pilot Eldridge. She brought up in the river to await tide service, but the rescued passengers, which included a little child, were at once landed in the docks and conveyed to an hotel, where every attention was paid to them by direction of Mr. E. K. Corke, the South-Western Company's energetic superintendent here. The ladies were in a pitiful plight indeed; most of them were without shoes, some without stockings, and three or four were wrapped in blankets, supplied by the crew of the *Mary*. The fireman who was saved owes his life to Mr. Goodwin, who was standing on the deck with him, and exclaimed, "Jump into the boat and take that oar," and on the man demurring he pushed him in, saying, "Mind you come back for me," but before the boat returned the *Normandy* had gone to the bottom. One of the ladies saved brought back a favourite dog which was thrown to her, we are told, by her brother, who, poor fellow, was lost. Another lady is saved whose mother has perished in the ill-fated vessel, and a third whose husband and two children perished. The actual number of passengers lost cannot yet be accurately ascertained, for it seems they had not taken their tickets, and if they had it would be hardly possible to tell, Mr. Ockleford, whose duty it was to have granted them, being lost; but it is said there were about twenty-five or thirty—a small number as compared with ordinary passages, for on Monday night, for instance, there were about forty-six.

The *Mary* is a long screw steamer, of about 900 tons register, and was from the Black Sea and Mediterranean, bound to London with maize. Her home port is Grimsby. She left Gibraltar on Wednesday week, and had a tolerably fine passage across the Bay of Biscay, but on entering the Channel the weather thickened, and on Wednesday morning the captain gave orders for slackened speed, which was maintained up to the time of the accident, fog-signals being sounded in the meantime at intervals. She came into the Dock last evening astern of the Royal Mail steamer *Douro*, which had preceded her to Southampton with the news of the disaster; but considerable delay was experienced in entering the dock channel, owing to her grounding twice on the shifting bank of shingle, which forms such a bone of contention between the pilots and others and our harbour authorities; and although two tugs were plucking at her for a long time, at least one hour was wasted, and the vessel consequently lost her daylight in coming alongside. She was safely moored about eight o'clock alongside the West India jetty, and preparations were at once made for the discharge of cargo, which it is feared is damaged by water, and the necessary survey.

The *Normandy* was a fine paddle steamer of 252 tons register, and 425 full tonnage, fitted with engines of 238 horse-power. She bore the reputation of being one of the fastest vessels on the line, and it has often been our pleasure to chronicle in these columns instances of the extraordinary speed which she attained. Her captain had grown grey in the service, which he entered before the mast, and gradually

rose by force of sheer good seamanship to the position he occupied at the time of his unfortunate end. All who knew him have many good words to say of him; he was of a quiet and amiable disposition, with an intense regard for duty, and many regrets are expressed at his untimely fate. He was a member of Court Sir Bevois, 1920, of the Ancient Order of Foresters, and leaves a widow, resident in Southampton, and a family, but the children, we understand, are grown up.

Of naval matters we must have a few words, which may be summed up thus—that our gallant brother officers have lived to witness the most remarkable revolution in the *personelle* of that service that has ever been known; and it is one which it is impossible to deny was very much required. That the several lists were crowded to excess every one admits; and that, consequently, employment could only be found for a limited few followed as a matter of course, besides the lack of promotion continually increasing the retired ranks of officers. We have elsewhere given the scale of pay for the various retired ranks of naval officers, who have also the option of leaving the service or not, with a money compensation for their commissions; and these matters, with the reduction of numbers and the compulsory retirement from each rank at certain ages, as well as from non-employment in each for a certain number of years, form the main features of this sweeping measure (as we may call it), the good effects of which will be hereafter apparent in the far greater number of employed officers of all ranks in proportion to the actual number in each rank than has ever been known, besides the fresh energy which will follow. And thus a more wholesome familiarity of each rank will be kept up with the progressive improvements and changes continually occurring in the profession than has ever yet been known. We may briefly state the former and present numbers of each of the principal grades of officers. Thus there were formerly of

| | Former. | Present. |
|---|---|---|
| Admirals of the Fleet . . . . . | 3 | 3 |
| Admirals . . . . . | 16 | 7 |
| Vice-Admirals . . . . . | 24 | 15 |
| Rear-Admirals . . . . . | 48 | 25 |
| Total . . . | 91 | 50 |
| Captains (about) . . . . | 300 | 150 |
| Commanders „ . . . . . | 400 | 200 |
| Lieutenants „ . . . . | 800 | 600 |

Thus making a very considerable reduction of officers looking for employment, and rendering their chances of obtaining it among those who remain much greater than before. The whole subject, with its attending advantages for compulsory retirement, seems to have been with but few exceptions satisfactorily received by the service, and we regret that our space precludes the possibility of stating much of Mr. Childers' speech on introducing the measure to Parliament. But we

must endeavour to find room for three principal features in the long and exhaustive speech made by Mr. Childers, and these we select from the concluding sentences. He is reported to have said:—

"At the beginning of the period when we first took in hand the administration of the Navy, I and my colleagues laid down three objects which we determined to keep steadily in view. One was to do all in our power for the efficiency of the Naval service. That is and must be the first object of every First Lord of the Admiralty; and considering what we have done in increasing the efficiency of the men, the keeping of ships at sea, and improving the efficiency of the dock-yards, we confidently appeal to this House and to the public for the confirmation of our assertion that the efficiency of the Navy has not suffered at our hands. Next to the improvement and efficiency of the service, we determined to keep economy in view. I have shewn that we have effected a saving in the Navy Estimates of £2,000,000 as compared with the two years previous to our administration. Our next object was to render the service contented. It must be evident that so long as we had a large number of officers unemployed, and as long as the question of pay was unsettled, we could not expect to have a contented service. We believe, however, that the proposal I have made to-night ought to render the service contented. *Efficiency*, *Economy*, and *Contentment* are, then, the main bases of our naval policy. I have explained to the House—not, I trust, at too great length—how we propose to attain these great objects, and my only hope is that the House will endorse our naval policy."

This has, of course, followed most heartily, and in our opinion the Naval Service has never before seen so searching, so wide, and so generous a measure as this in all its branches as applied to the different grades of that service.

We perceive it is stated that the sum for which Deptford Dockyard has been disposed of is £75,000. It is stated also that a new dock which has been constructed in the Isle of Dogs, belonging to the East and West India Dock Company, was opened on the 2nd of March. It is said to cover an area of thirty-three acres, and to be capable of receiving the largest ships. By the last mail from the Cape we have the satisfaction of finding that the Dock of Cape Town, that has been many years in course of construction, was to be opened on the 14th of March—a grand step, this, in the progress of that town. Safety of anchorage in Table Bay will be thus secure, as in the gales to which that bay is so sadly open ships will now have security under their lee.

We have not yet been able to discover whether we are to have a tunnel formed of an iron tube for railway carriages, a bridge on we cannot say how many arches, or a steam line of powerful vessels which will receive railway carriages, so as to obviate all necessity of embarking or disembarking in large harbours, yet to be constructed on either shore, one at Dover and the other between Cape Griznez and Boulogne, for, of course, each scheme has its advocates. It may be a nautical

eye which misleads us, but we are inclined to think the latter plan the most feasible, notwithstanding both the other schemes have considerable engineering supporters; and, of course, engineers laugh at engineering difficulties. But we shall not fail to watch the progress of events.

THERE is a proposal it appears to improve Cowes harbour and roads, as well as the channel of the river Medina, and Ventnor is proposed to be improved with a pier, which is thus alluded to in a recent *Hants. Telegraph*. The promoters are Messrs. Burt, Moor, and others, who apply to be incorporated as "The Ventnor Pier and Esplanade Company," with a capital of £35,000, in 7,000 shares of £5 each, with power.—1. To construct a pier, with all necessary works, at Ventnor, Isle of Wight, commencing near the point where the public road from Mill-street joins the esplanade, and extending seawards about 700 feet.—2. To construct an embankment and esplanade, extending from the proposed pier eastward for about 640 yards.—3. To borrow £10,000.—4. To levy rates. The estimated cost of the works is £30,000. An objection to the scheme has been received on behalf of Mr. Warwick Richards, on the ground of anticipated depreciation of his property by the erection of a piermaster's house and other buildings in front of and below his residence, which he fears will be injuriously affected by the smoke from the chimneys of the proposed buildings. This objection is, in the opinion of the Board of Trade, not sufficient to prevent them proceeding with the order, which they accordingly propose to do.

TURNING to our old acquaintance the *Dreadnought*, so long known as the sailors' general hospital in the Thames, we find the following concerning her in *Mitchell's Maritime Register*. At length the Government have been induced to give way to the representations made on behalf of the patients in the *Dreadnought*, and to provide accommodation for them in the Infirmary of Greenwich Hospital. Had this decision been arrived at when the removal of the pensioners placed Greenwich Hospital at the disposal of the Government, the Seamen's Hospital Society would have been spared anxiety and cost, and the *Dreadnought* patients would, for the past three years, have enjoyed the advantage of spacious accommodation, sufficient ventilation, and a more salubrious atmosphere—conditions which, it is well known, are incompatible with the maintenance of the Hospital on board an old hulk in the Thames.

The Committee of the Seamen's Hospital had become so convinced of the necessity of establishing the Institution on shore, that they had actually purchased a site, and were proceeding to erect a building in the immediate neighbourhood of the old Hospital, the cost of which would have gone a long way towards exhausting the resources of the Society. Happily, the withdrawal of the pensioners from Greenwich Hospital afforded a prospect of being able to locate the *Dreadnought* patients in some vacant quarter of that spacious edifice. To a better purpose the wards vacated by the pensioners could not possibly be

applied. Yet it has cost some years of persistent effort, on the part of the Committee and of the press, to extort from the Admiralty a concession which the Admiralty should have been the first to suggest. Our readers will remember the prolonged and profitless discussions respecting Queen Anne's quarter and Queen Mary's quarter, and the revelations which were made of the gross preference shown to favoured individuals, at the expense of the suffering members of a noble Service, and of the interests of a great international Charity. The controversy has at length terminated, as controversies frequently do, by the discovery of a "middle way." Neither Queen Mary's nor Queen Anne's quarter has been placed at the disposal of the *Dreadnought* Committee, but that part of the building known as the Infirmary, and which occupies the block of buildings at the south-west corner of Greenwich Hospital.

To these wards the *Dreadnought* patients will be removed as soon as the arrangements for their reception are completed. It is said the floating Hospital contains 200 beds, and during the past year no less than 1,937 patients were admitted, exclusive, we believe, of a large number who received advice and medicine. The Infirmary will accommodate any number of patients which have ever been housed, at one time, in the *Dreadnought;* and the means and appliances of a Hospital being there, the cost to the Committee in preparing for the reception of the new inmates will be but trifling. Slowly, and with great apparent reluctance, the Government are induced to recognise in some degree the claims of the Mercantile Marine. £4,000 a year to be distributed amongst old and distressed Merchant Seamen, and the loan of the Infirmary for the use of the *Dreadnought* patients, may be regarded as instalments of justice long deferred, and as affording encouragement to the friends of the Mercantile Marine to persevere until that justice be fully rendered.

There is no doubt that the conditions under which Greenwich Hospital was built have occasioned the difficulty of this subject, or no doubt the same might have been done long ago.

Our present number is largely devoted to the Suez Canal, but we are induced to notice the following information which we have gathered from parliamentary proceedings regarding it.

Sir S. Northcote asked the First Lord of the Admiralty whether he could give any explanation of the circumstances under which two of her Majesty's ships of war ran aground off the Egyptian coast previous to the opening of the Suez Canal.

Mr. Childers replied that it was true that the *Royal Oak* and the *Prince Consort* ran aground on the 16th of November on a bank a mile and a half off from the Egyptian coast, that bank not being marked on the chart. It had been ascertained that the bank was occasioned by the mud and other deposits placed there by the agents of the Suez Canal, and no notification whatever was given to her Majesty's Government of the existence of that accumulation of mud. The circumstances, however, had been fully reported, and the Admiralty had distinctly exonerated the captains of both ships from all blame.

We trust that this bank will be named after its evident originator M. de Lesseps, for it has evidently been occasioned by the deposit of the dredging for the Canal. We have already heard something about an island forming there, and here seems to be ample reason. However whether island or shoal it ought to bear the name of Lesseps, and now that we are on the subject we may notice the following, which seems to confirm what was predicted in this journal some years ago.

A conference was held at the Society of Arts on the influence of the Suez Canal on trade with India. Sir Bartle Frere was chairman. The discussion was opened by a paper from Sir Frederick Arrow, Deputy-Master of Trinity House. He himself visited the opening of the canal, and thought much benefit must follow the inauguration of a work which would give us increased facilities of communication with the East. There was now no doubt that steamships could readily travel through the canal. Steam, he said, could compete, via the canal, with sailing ships via the Cape. The canal would open a considerable trade, yet undeveloped, with the countries bordering on the Mediterranean. We, as Englishmen, ought to fully recognise the great work achieved by the eminent Frenchman who was the author of the scheme. Captain Sherard Osborn thought many years would pass before the result would be thoroughly developed, that eventually the cotton that could be grown in India would be brought to England by it, and that when that time had arrived India would be able to compete with the United States in cotton production. Mr. George Campbell said the difficulties of navigating the Red Sea had been much exaggerated. He hoped English traders would now bestow more attention upon trade with Bombay.

Sir Thomas Bazley, M.P., was of opinion that the canal meant a new commercial career, and new civilization. Still he wished the canal could be deepened by twenty-five or thirty feet, and that it could be doubled in width. A contribution of a million sterling from a few great countries would effect this improvement. He hoped cotton cultivation in India would now be promoted more vigorously than it had been in the past. Mr. Dadabhoy Nowranjee contended steam navigation alone could make the Suez Canal effectual, that India intellectually and physically was being literally born again, and that the Suez Canal would prove of the greatest benefit to India. Colonel Pitt Kennedy, who thought it was unfortunate that England did not support the project at the outset, warmly eulogised M. Lesseps, and concurred in the hon. member for Manchester's suggestion as to improving the canal. Mr. J. B. Smith, M.P., said he knew that the canal could be easily widened and deepened. Captain Sherard Osborn, interposing, said he had been officially told that the canal was now twenty feet deep. The hon. member for Stockport urged that an improved cotton cultivation in India would produce 300lb. per acre. Mr. Hyde Clarke, Mr. Wallis Harding, Mr. Trelawny Saunders, and others, continued the discussion, and a vote of thanks was passed to the author of the paper at the close of the proceedings.

We find it stated that an expedition sailed from New York on the 1st of February for the Darien Isthmus, with the view we presume of obtaining the necessary information to enable the United States Government to determine finally the place at which to pierce the Isthmus for the canal. While the Suez Canal opens the way to India from the Mediterranean, the Darien Canal would do the same to Japan and the shores of the whole Pacific, and materially contribute to the intercourse between the Eastern and Western shores and islands of this Ocean and America. It is a work well worthy of the United States Government, and no doubt the sooner it is done the better. But if any of our readers are inclined to a voyage to Hong Kong by the West, via New York, San Francisco, and Yokohama, here is some interesting information for them. And then a word on the flourishing condition of the Island of Labuan.

And now of the great American Pacific railway. The completion of the Overland Railroad has excited an extraordinary competition between the three principal railroad lines running eastward from Chicago,—the N. Y. Central, the Erie, and the Pennsylvania Central—each of which is bent on securing the trade and travel along the line of the Continental road. Under the impetus of this competition, the mails and passengers are now taken through from New York to Chicago in *thirty hours*, the old time having been forty-one hours. All this increase of speed will tend to draw travel from Europe across the American continent to China and Japan, as speed is the great desideratum with commercial travellers. An American paper gives the following table of distances and time required by this route:—

| *Stations.* | *Miles.* | *Days.* | *Hours.* |
|---|---|---|---|
| London to Holyhead .....rail | 263 | .. | 10 |
| Holyhead to Dublin .....steamer | 63 | .. | 4 |
| Dublin to Galway.....rail | 125 | .. | 5 |
| Galway to St. John's, N. F.....steamer | 1,656 | 4 | 10 |
| St. John's, to Cape Ray .....rail | 280 | .. | 14 |
| Cape Ray to Cape North .....steamer | 45 | .. | 3 |
| Cape North to Pictou .....rail | 120 | .. | 5 |
| Pictou to St. John, N. B. .....rail | 250 | .. | 10 |
| St. John to Bangor .....rail | 196 | .. | 8 |
| Bangor to Portland .....rail | 138 | .. | 6 |
| Portland to Rutland.....rail | 168 | .. | 8 |
| Rutland to Albany .....rail | 70 | .. | 3 |
| Albany to Chicago .....rail | 818 | 1 | 1 |
| Chicago to Omaha .....rail | 450 | .. | 18 |
| Omaha to Promontory Summit ....rail | 1,086 | 1 | 10 |
| Promontory Summit to Sacramento..rail | 690 | 1 | .. |
| Sacramento to San Francisco ..steamer | 140 | .. | .. |
| San Francisco to Yokohama....steamer | 4,520 | 20 | .. |
| Yokohama to Hongkong .....steamer | 1,560 | 6 | .. |
| | 13,638 | 37 | 4 |

It is not improbable that this new route, via New Brunswick, Maine, Vermont, and Albany, which is much shorter than that via New York, will attract the through passengers and mails, which can be landed in San Francisco inside of twelve days from London. The whole time required by this new route from London to Hongkong will be say thirty-eight days, which is considerably shorter than the time heretofore usually occupied by the Peninsular and Oriental steamers.

A correspondent of one of the San Francisco papers, writing about the progress of the Japanese who have settled in Placer country, says that they have bought more land and sent to Japan for more of their countrymen to migrate thither, and settle in this new tea district. He further says:

The culture of tea is really likely to add one more resource of importance to the many which are building up California. The tea plants (numbering 3,000,000) planted out by our new settlers, have so far thriven. It is not generally known, too, that one of the clearest burning oils, "China oil," is the product of the tea nut, and adds considerably to the profits of its culture. Should the experiment succeed, we shall soon have hundreds of tea plantations laid out, and it is evident that the suitable labour is to be obtained from our Chinese, and shortly from our Japanese populations.

The *Times of India* says that no difficulty whatever is being experienced in Bombay in finding remunerative freight for the steamers via the Suez Canal. For several not yet arrived full cargoes have already been engaged. One of the effects of the opening of the Suez Canal is said to be an increased demand for the coal of Labuan. The *Englishman* tells us that the coal in this small island, only fifty square miles in extent, is estimated at 400,000,000 of tons. It is obtained at a depth of 240 feet from the surface, and European coalheavers and miners have been imported to teach natives how to work in the mines. A large wharf is being constructed, at which the largest ship in Her Majesty's service can lay alongside to coal, convicts being employed to load the fuel on board. At present the fuel is brought down by a road steamer, but a railway is in the course of construction, and will soon be finished. The Governor, Pope Hennessey, reports most favourably on the flourishing condition of the island.

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## New Books.

PROPOSALS FOR THE ILLUMINATION OF BEACONS AND BUOYS: by *Thomas Stevenson, F.R.S.E., etc. Adam & Black, Edinburgh.*

It was not unlikely that, after the lighthouses of our coasts for many years—even the many which have elapsed since the dark ages, as we may justly call them—had enjoyed the undivided attention of learned men to their improvement—it was not unlikely, we say, that the same attention would be directed to the improvement of beacons. That

attention has already shown itself in the particulars of form, colour, and arrangement. We have also met with a plan for even partially lighting them; and we have now before us a pamphlet from the pen of the well-known Secretary of the Northern Lighthouse Board, Mr. Thomas Stevenson, F.R.S.E., bearing on its title page "Proposals for the Illumination of Beacons and Buoys," with a most interesting account of the *modus operandi;* in fact, illustrating how it has been done by some very ingenious methods, and the simple one of throwing rays of light from the shore on a reflector fixed upon a rock, so that it should reflect those rays down a channel so as to make the place of that rock evident to the seamen who may be using that channel. Many of our readers are acquainted with the Arnish rock, at the entrance of Stornaway, in Lewis Island, that Mr. Stevenson tells us for "more than eighteen years still continues to give satisfaction to seamen, to whom the light has all the appearance of coming from a lamp placed on the beacon itself."

Doubtless this is a most effectual, and perhaps most economical, way of lighting a rock—not new, certainly, and one that recommends itself from its mere simplicity. Yet Mr. Stevenson has shown in his pamphlet various ways in which the same may be done, and the difficulties he has overcome in applying electricity to the same purpose. As a proof also how ingenious minds hit upon the same object (of producing a similar effect) with the same means differently applied, we have a highly interesting letter, quoted by Mr. Stevenson, of Admiral Sheringham (that we take some blame to ourselves for not having recorded in these pages long ago), who lighted a gas burner on a buoy afloat.

But we must reserve for further opportunities the consideration of this interesting and important subject—one so fresh, as it were, and yet so simple in its application, and at the same time so generally applicable to secure the important object of safety of navigation at night. We agree with the author entirely when he says "the science of beacon illumination is yet in its infancy, and we cannot limit its application." And, therefore, as Mr. Stevenson here shows all the various circumstances under which this may be done, both efficiently and economically, we cordially recommend his plans to our readers, and more especially to those who are entrusted with the care of our harbours and the various difficulties of their entrance and navigation, which may be desired peremptorily, perhaps, amidst hours of darkness and the dangers of storm.

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## To Correspondents.

The following received too late for notice in our present number.

Sketches of Headlands, etc., China and Japan. By W. B. Andrews.

Lighthouses, etc., of the United States.

Annales Hydrographiques, fourth part, 1869.

Port of Maulmain. By A. McDougall Peche.

THE

# NAUTICAL MAGAZINE

AND

# NAVAL CHRONICLE.

MAY, 1870.

## Schooners with Forbes's Rig.

Boston, March 18th, 1870.

Sir,—As you invite further discussion of the merits of my schooner rig for small craft, I will say that I recommend it as a matter of *absolute necessity* for the very large schooners now so much used in this country. It does not follow that it would not be a very good rig for the *smallest* craft engaged in trade, and I can very well conceive cases where it would ensure victory in a yacht race; and if *economy* is to be considered (an important element in yachting), there can be no doubt of the advantages on that score.

As to doubling down the extreme upper corner of fore and aft sails, in lieu of reefing, there would be too much bag or slack canvas to catch the wind. The best plan for reefing a mainsail, which I have long used on sloops, is to have a reefing boom laced to the sail at the point of a deep single reef, supposing the foot of the sail to be laced to the main boom, as it ought invariably to be. To this reefing boom there are attached pennants and tackles, so that by simply slacking down halyards and hauling on the tackle, the reefing boom is hauled down to the main boom, and at leisure two or three stops are put on to keep the sail snug. By merely luffing into the wind the operation can be performed without seriously impairing the head way. I do not hesitate to say that the largest mainsail, *with due preparation*, can thus be reefed, and reefed snugly too, in one minute, or while a smart yacht is luffing up and swinging off again, without any delay in keeping the helm amidships.

In fitting a yacht of considerable size with the reefing boom, the aggregate weight of the two booms should not much exceed the usual single boom, and in large craft, the reefing boom should have jaws and a topping lift, as well as a support to the inner end, so as to relieve the luff rope and throat halyards from their weight. In racing, where

one is to start before a strong breeze, it will be found of great advantage when it becomes necessary to haul on a wind at the turning point. I give you a sketch which I think will be worth illustrating in the *Nautical Magazine*.

In illustrating my reefing boom I also give you my plan for combining the advantages to be derived from having a boom to the fore sail, and yet not lose the *over-estimated* advantages of a lug sail. In many yachts their owners or captains are so eager to get as much canvas as practicable that they bring the clew of the jib (which you call foresail) too far aft, and the clew of the foresail (what do you call that sail?) too far aft, and thus you throw the wind, when close hauled, out of the luff of the sails next abaft them.

I much prefer to lose a little of the surface of my two principal sails, namely, what we call foresail and jib going free, rather than to damage the power when close hauled. I also give you in the same illlustration an excellent plan for working the jib, it is in common use here. In going in stays with a schooner so rigged, and when under her three lower principal sails, not a single man need move beyond hauling that little corner of the foresail from one side to the other, and this can be done in a schooner of 200 tons by two men. To the jib (*Anglice* foresail) there is a check rope leading from the rail to the clew, which in stays may be tended by one man laying close to the deck, and only held in an instant to make sure of stays. In a good breeze and moderate sea, with room enough to roam at will, a jib should never be kept to windward in a decently balanced yacht. I consider it of great importance to be able to sail any yacht, large or small, without running about in crowds hauling sheets. Silence and absolute stillness are almost as important as confidence and skill.

Very truly your's,

R. B. FORBES.

*To the Editor of the Nautical Magazine.*

*References to the drawings of Forbes's Schooner Rig.*

No. 3.—Boom and lug foresail combined. Fore boom just clears the main mast. A light sheet at clew of foresail, see broken line: a band from gaff to foot of sail. The jib has a traveller on the deck, and works itself.

No. 4.—New rig between the masts for a yacht. *A.* Reefing boom. *B. B.* Pennants. *C. C.* Stops. *D.* Tackle. *E. E.* Fixed stays. *F. F.* Travelling stays. *G.* Jack yard.

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## Reflections on our recent Disasters by Sea.

The commencement of the present year, eighteen hundred and seventy, has been fertile in marine disasters of no ordinary character, and it is much to be regretted that not one of them has tended to increase our admiration of English seamanship, while in more than

one instance grave charges of reckless inhumanity have been brought forward, and not satisfactorily disproved. The most painful of these is the loss of the American ship of war *Oneida* with the majority of her numerous crew. It is not easy to comprehend the motives which induced the commander of the *Bombay* to desert a ship which he had struck end on at a high rate of speed. He may state that he thought he had only "brushed her:" and yet should not the sight of the broken spar, through the bows of his own ship, have suggested grave doubts concerning the safety of the other? and why should he be induced to follow the advice of an ignorant pilot, and coolly trust to chance for the safety of the ship he had injured. The sentence of the court on his conduct is manifestly absurd: he was either guilty of a grave offence against the laws of humanity, or simply of an error in judgment. If the first charge could be proved his punishment should have accorded with the magnitude of the crime: but as it was not he should have been acquitted.

In such serious cases it is right that there should be no middle course; for this is sure to cause dissatisfaction to those who are interested in the result. There is not a man in the United States who would not have been more satisfied with the verdict of acquittal than he is with the present sentence of six months' suspension of certificate. The propriety or even the legality of trying such a case in an ordinary naval court is very questionable. The scanty account of the investigation which has been published marks the whole proceedings with anything but a dignified character.

The loss of the *Spindrift* too, now an old story, has given rise to so much discussion that a passing word may be bestowed on it. Without exception it was the effect of the most singular piece of negligence that could be imagined; yet no one is held to be responsible for it. Had the captain or the pilot taken a single bearing of the supposed star this might have aroused their suspicions and saved the ship: a proper cast of the hand-lead even would certainly have done so. There was no fog to hide the light from view, and its non-appearance should at once have given rise to the suspicion of those in charge. But no: a noble ship with a cargo worth £200,000 was allowed to sail along the land, with an untried leadsman in the chains who possibly might not have known even the marks on the leadline! for shipmasters and pilots know too well that good leadsmen are exceedingly rare in the mercantile marine now-a-days. Beyond this no precaution appears to have been taken.

It is rather singular that the possibility of an error in the compasses being the cause of her wreck has never been mentioned; and yet it is highly probable to have been the sole cause of it! One can scarcely believe that a wrong course was steered when a man was at the "con" who had tracked the ground a thousand times, and, probably, never under more favourable circumstances of wind, weather, and sea, than on that unfortunate occasion.

It is the custom of commanders in the Merchant Service to trust too much to the skill and knowledge of the pilot. The simple fact of

his holding a certificate is with them too often considered a sufficient guarantee for giving up all charge. Frequently this confidence of the captain is misplaced! yet no steps have been taken to render him more independent of such aid. At Liverpool there are divers pains and penalties if a ship does not hoist the pilot Jack on nearing the station, or if an attempt be made to pass a pilot boat, although the saving of a tide depended on it. In order to prevent anyone from evading this law, the pilot on taking charge hoists his own flag in a conspicuous part of the ship. Then again, as a rule, there are few pilots who can "work a chart," and this renders them, on many a trying occasion, but indifferent guides. Indeed it is my lot to be able to bear testimony to this after many years' experience.

It is very much to be feared that the *City of Boston* has foundered with all on board; why, we shall probably never know. It may have been caused by collision with an iceberg, or even another ship. Some are sanguine that traces will yet tell us something of the disaster, for her numerous life-buoys would float for months without injury, and each would bear the ship's name, according to the universal custom of all great companies. Beyond such relics there are few articles that are easy of recognition; unless her spars should have been branded with the arms of the firm.

Great credit is due to the Messrs. Inman for the unceasing exertions they have made to gain tidings of their missing ship, alas, up to the present time without success! Such mysterious losses on a well-known route are very rare, and it would be well for England if such could be taken as the principal part of her maritime death-rate. Unfortunately the number of souls on board the *City of Boston* forms but a small portion of it. Yet her probable loss has occasioned more excitement than would a score of our coasting craft with all hands.

It is all very well for the public to remain by their fireside to criticise severely these accidents which sometimes happen to our ocean steamers; and yet they are more to be blamed than their commanders; when a body of men, watch in hand, are waiting for the arrival of one of them, on either side of the Atlantic, the captain MUST run risks if he is to keep time. Does the public imagine that it is always agreeable to run through all, with one's life in one's hand? and yet forsooth such is the bounden duty of a passage steamer!

MISSING STEAMSHIPS.—Total disappearances, with the loss of all on board, has been among the rarest of disasters recorded of ocean steamships.

The *President*, which left New York on March 11th, 1841, having among her passengers Tyrone Power, the comedian, a son of the Duke of Richmond, and other noted persons, is in this dismal catalogue, and so is the *City of Glasgow*, lost in 1854, and the *Pacific*, in 1856; but it might be difficult to name any other vessels of similar character that have so vanished and "left not a rack behind." Consequently, the chances would seem to be that, as in the cases of the troopship *Birkenhead*, and the packets *St. George*, *Central America*, *Sarah Sands*,

*Austria*, *Anglo-Saxon*, and *London*, a greater or less number of the passengers of the now missing craft may have been saved.

Such, it will be remembered, was also the fact as regards the *Lady Elgin*, sunk by collision on Lake Michigan, September 8th, 1860. Of her 385 passengers, 287 perished, among whom were Mr. Herbert Ingram, M.P., the founder of the *Illustrated London News*, and his son. Of the passengers and crew of the *Hungarian*, on the other hand, which was wrecked on the coast of Nova Scotia, February 19th of the same year, all on board were lost. The *Birkenhead*, wrecked off Simon's Bay, South Africa, February 26th, 1852, lost 454 and saved 184. The *St. George*, which was bound from Liverpool to New York, and was destroyed by fire at sea, December 24th, 1852, lost 51 while 70 were rescued and taken to Havre by the American ship *Orlando*.

The *Central America*, which foundered on her way from Havannah to New York, September 12th, 1857, carried 579 persons, of whom only 152 were saved. Of the 538 on board the *Austria*, burnt in the middle of the Atlantic, September 13th, 185[illegible], but 67 survived. The *Sarah Sands*, which sailed from Portsmouth for Calcutta in August, 1857, took fire in November, and afterwards experienced a tremendous gale, carried all on board safely into port.

The *Anglo-Saxon*, wrecked on a reef off Cape Race during a dense fog, April 27th, 1863, lost 237 out of 446 individuals. The *London*, which foundered in the Bay of Biscay, January 11th, 1866, on the passage from England to Melbourne, lost 220 lives, among whom were Dr. Woolley, principal of the University of Sydney, and Mr. G. V. Brooke, the tragedian.

Two instances have occurred during the past few years, when the romantic incident, so much used by novelists and dramatists, of a single life being saved from among all on board a lost ship, has really been exemplified. These were in the cases of the *Dalhousie*, wrecked off Beachy Head on October 19th, 1853, and the *Dunbar*, wrecked off Sydney on August 20th, 1857. In the latter instance the survivor was thrown by a gigantic wave into a tiny aperture high up in the face of a precipice—the chance of such a thing occurring being about the same as that of throwing a pea into a nail hole in the side of a wall—where he lay insensible for many hours, but was finally discovered and saved by a daring fellow who caused himself to be let down from the top of the acclivity by ropes.—*New York Times.*

In the House of Commons in reply to a question from Sir J. PACKINGTON, Mr. S. LEFEVRE said the Board of Trade had received information to the effect that eight British steam-vessels had been lost since the commencement of this year. Two of the cases were collisions; three vessels were reported to have foundered; two others were supposed to have done so; and one—the *Sea Queen*—was stranded. He hoped shortly to lay before the House the ordinary wreck-register.

## The University Boat Race.

The pages of the *Nautical* have always been so full of hydrographic matters, that it seems to ignore regatta and other aquatic matters of that kind entirely. A boat race on the Thames, was it from the fresh water, or what other reason has there been to exclude such matters from the *Nautical?* Do, Mr. Editor, unbend for once and away and give your readers on salt water in all parts of the world an account of the great boat race between the rival universities of Oxford and Cambridge, that they may have an opportunity of judging for themselves. And let me tell you that contemptible as their racing boats may be, they get up a good rate of progress approaching about twenty English miles an hour. Can your salt water oarsmen do that.

Yours,

Alpha and Omega.

Our correspondent will see that we are in every way inclined to attend to his wishes, having borrowed our materials as he says "once and away" from our first authority in such matters, the *Daily News*. The account of the last race we consider graphic in a high degree—a veritable curiosity in its way.

As usual on the day immediately preceding a great race, both crews abstained from any approach to strong work, and contented themselves with a quiet morning paddle half-way between the Point and the Crab Tree, stopping occasionally to practise starts and short spurts of about a dozen strokes. In the afternoon, shortly before five, Cambridge again put out and paddled down to the aqueduct, when they started as in an actual race from the stern of a skiff, and rowed at top speed for about a quarter of a mile. They got off beautifully together, settling down to their work in an instant, and lifting their boat along in splendid style, amid a burst of encouraging cheers from the spectators, who seemed to be very favourably impressed by the performance.

Every possible precaution has been taken by the officials of the Thames Conservancy to secure a clear course for the competition. Putney bridge, with the exception of the two shore arches, which will be available for small craft only, will be closed at 3.30 p.m., and no steamboats, tugs, or lighters, will be allowed to pass through between that hour and the time appointed for the start. Arrangements have also been made for marking out the course at different points by means of red flags, so as to avoid any obstruction from row boats, and strong barricades will be erected at intervals on the tow-path, for the purpose of preventing any undue pressure. We hear that the Press steamboat will leave the Temple Pier at two o'clock, and the Umpire's boat will start from London Bridge about half an hour later.

The betting last night was quoted at 6 to 5 on Oxford, taken.

We are indebted to Mr. MacMichael's book on the "Oxford and Cambridge Boat Races," for the facts of the following brief account of the results of previous races between the Universities:

1829.—Hambledon Lock to Henley, 2¼ miles. Won by Oxford by sixty yards, or five or six lengths. Time 14 min., or according to one account, 11 min.

1836.—Westminster Bridge to Putney Bridge. Won by Cambridge by one minute. Time of winning boat, 36 min.

1839.—Westminster Bridge to Putney. Won by Cambridge by 1 min. 45 sec. Time of winning boat, 31 min.

1840.—Westminster to Putney. Won by Cambridge by a boat's length and a half. Time of winning boat, 29 min. 30 sec.

1841.—Westminster to Putney. Won by Cambridge by one minute. Time of winning boat, 32 min.

1842.—Westminster to Putney. Won by Oxford by 13 sec. Time of winning boat, 30 min. 45 sec.

1843.—There was no race this year between the University Boat Clubs, properly so called, but at Henley the famous "seven oar race" was rowed between the Oxford University Boat Club and the Cambridge Subscription-rooms Crew, in which the Oxford crew won after losing an oar. The Cambridge Subscription-rooms was a London club, of which, however, the Cambridge University Boat Club were members.

1844.—There was again no match between the Universities alone this year, but the Oxford and Cambridge University Boat Clubs both sent up crews to the Thames Regatta, in which they competed with the Leander Club. Oxford won by four lengths. Cambridge came in six lengths ahead of Leander.

1845.—Putney to Mortlake, 4 miles 1 furlong. Won by Cambridge by eight or ten lengths. The University Clubs also sent up crews to Henley, when they contested for the "Grand Challenge Cup." Cambridge won easily.

1846.—Putney to Mortlake, 4 miles 1 furlong. Won by Cambridge by about three lengths. Time of winning boat, 21 min. 5 sec.

1847.—There was no match, but University crews contended at Henley for the Grand Challenge Cup. Oxford beat Cambridge by two-and-a-half boat lengths, and subsequently won the cup from the Thames Club.

1849 (Easter).—Putney to Mortlake. Won by Cambridge by 60 sec.

1849 (December).—Putney to Mortlake. Race adjudged to Oxford on the ground of a foul.

1851.—No match. Oxford beat Cambridge for the Grand Challenge Cup at Henley by six lengths. No. 3 in the Cambridge boat broke his thowl pin.

1852.—Putney to Mortlake. Won by Oxford by six lengths.

1853.—No match. Race for the Grand Challenge Cup at Henley. Almost a neck-and-neck race. Won by Oxford.

1854.—Putney to Mortlake. Won by Oxford by 11 strokes. Time of winning boat 25 min. 29 sec.

1855.—No match. Cambridge beat Oxford at Henley by two-and-a-half lengths.

1856.—Mortlake to Putney. Won by Cambridge by about half a length. Time 25 min. 45 sec., or 25 min. 50 sec.

1857.—Putney to Mortlake. Won by Cambridge by 32 sec. Time, 22 min. 50 sec.

1858.—Putney to Mortlake. Won by Cambridge by 22 sec. Time of winners, 21 min. 23 sec.

1859.—Putney to Mortlake. Won by Oxford. Cambridge boat sank.

1860.—Putney to Mortlake. Won by Cambridge by a length and a half. Time 26 min. 5 sec.

1861.—Putney to Mortlake. Won by Oxford by 47 sec. Time, 23 min. 30 sec.

1862.—Putney to Mortlake. Won by Oxford by 30 sec. Time, 24 min. 40 sec.

1863.—Mortlake to Putney. Won by Oxford by 45 sec. Time, 23 min. 6 sec.

1864.—Putney to Mortlake. Won by Oxford by 1 min. 20 sec. Time, 21 min. 40 sec.

1865.—Putney to Mortlake. Won by Oxford by three and three-quarter lengths. Time 21 min. 24 sec.

1866.—Putney to Mortlake. Won by Oxford by three lengths. Time, 25 min. 35 sec.

1867.—Putney to Mortlake. Won by Oxford by half a length. Time 22 min. 39 sec.

1868.—Putney to Mortlake. Won by Oxford by four lengths.

1869.—Putney to Mortlake. Won by Oxford by four lengths. Time, 20 min. 4¾ sec.

## The Boat Race of Wednesday, April 6th.

*On the Banks.*—At an early hour this morning Putney was full, and a continuous stream of carriages flowed past Harry Kelly's and the Star and Garter towards the course. Putney itself was crammed with idlers, who loafed about with straws, or pipes, or toothpicks in their mouths, offered to lay any odds upon either Oxford or Cambridge, smoked, swore, and spat, very freely, and freely criticised the occupants of the various vehicles that rolled over the bridge. What object these gentlemen had in view it was impossible to guess. There they stood, however, and loafed, and drank, and spat, and mobbed the doors of the Red Lion and of the Star and Garter, much as if the stable yards of these hostels were a sort of saddling paddock, in which by tipping a waiter you could see Darbishire rubbed down or Goldie stripped. It was idle to entertain hopes of getting a little reliable information at head-quarters, as one very active gentleman pointed out Moss to me as Willan, and another busybody, upon seeing Payne, bellowed out promptly, "Hurroor for Yarborough," it became manifest that there was not much good to be got at Putney, and that the best thing to do was to make at once for the course.

A steady stream of foot passengers set in as early as eleven o'clock, and before one the banks were thronged from the Star and Garter to the Ship. The crowd was of much the same nature as that which haunts the small suburban races. Whitechapel and the Seven Dials were freely represented. Shabbily-dressed girls of twenty or thereabouts, with that painfully discordant laugh which tells its own tale, strolled up and down in couples, and exchanged badinage of a strong nature with life-guardsmen and navigators. The unmistakeable London ruffian was in full force—his beard, as it always is, of exactly a day's growth, and his demeanour sullen and suspicious, as if he knew the race was going to be a sham, and had come down under protest. Amusements of all kinds were brisk of the briskest long before noon. You could try your strength or your weight, or your height, could play Aunt Sally, or knock boxes off sticks, shoot for nuts or at rifle targets, play nine pins, or bagatelle, or the three card trick, or even at thimble rig. Where was Colonel Henderson? Punch and Judy, the Ethiopian serenaders, the marionettes, the happy family, the performing canaries, the "girl of the period" improvisatrice—who was really, in her way, very clever—brass bands by dozens, acrobats, with their families, ladies upon stilts, and even a female gymnast—all these and hundreds more of their fraternity were plying a busy trade and helping to while away the weary hours until the great event of the year—"the most chivalrous of all contests,"—"the noblest ordeal of England's youth," etc., etc., came off. Meat and drink there was in abundance—pickled salmon, whelks, Persian sherbet, oranges, ginger-bread, and almond-rock, beer and stout. The crowd, idling about in a listless manner, grew thicker every moment.

By three o'clock all the trees were filled with climbers, and a fall of some thirteen feet, resulting in a broken ancle, made no sensation. The public were weary of trifles, and wanted the great event. Thieves, of course, and cadgers, were in great force, and in one or two places several ugly rushes were made; the policy of the London pickpocket seeming to be to hunt in gangs, and, first throwing a crowd into confusion, afterwards to rifle its members at his leisure. A convicted pickpocket was ducked in the refuse ditch of the soap works; and another little incident—a prizefight between two amazons, who stripped and fought like men—whiled away time very pleasantly until three o'clock. By three every inch of carriage room had been taken up.

At Barnes the vehicles were at least four deep, and their occupants were leisurely finishing lunch. The family parties were a pretty feature. There were bright eyes and yellow hair, and neat figures and silvery voices in abundance. John Leech could have found matter such as his soul would have delighted in, and over which he could have revelled and lingered for weeks. But this was the bright side of the throng; the picture had its shadows. Kensington and St. James sent their drags and barouches; but other parts of London had also sent the job brougham and the hansom cab. Ladies about whose character there could be but one opinion, laughed, and chattered, and drank, and disported themselves to their heart's content. Muscular

Christians, decorated with blue rosettes, swaggered about in all the glory of muscle and youth, and chatted familiarly with the Vestals who are always to be found serving as priestesses wherever muscular Christianity congregates in large numbers. Little by little the crowd thickened. The barges and the stands filled. The occupants of the carriages began to mount upon the roofs. The multitude began to sway to and fro. Punch, the acrobats, the Ethiopians, and the three-card men taxed their energies to the utmost to turn the last few minutes to good account, and young Oxford and Cambridge showed symptoms of irrepressible excitement. Then came upon the air a dull roar of many voices, coming every moment nearer and nearer. All heads are turned one way. All amusements are stopped. All eating and drinking ceases. Every one is engaged for the moment in a wild struggle to better his chance of seeing the race. The crush is positively dangerous. A perfect Babel of voices rises. "Cambridge leads!" "Oxford leads!" "Nine to one!" "Three to two on the light blue!" And then the dull roar of cheers sweeps down upon us like an avalanche, and for a brief second we see the Cambridge boat leading with a steady, stolid swing, and Darbishire toiling in the rear, working as never yet man worked before. On sweeps the din of voices up to the winning post, and back like a great echo rolls the long loud shout which tells the victory of the light blues.

As we leave the course we pass hundreds of wretched sufferers, who have never been able even to catch a glimpse of the great event. The High Street of Barnes is blocked with carriages, whose occupants have had no share in the day's spectacle beyond the doubtful pleasure of listening to the shouting. Drags emblazoned with coronets from Belgravia, donkey carts from Bethnal-green, hansoms from the City, pony waggonettes from Brompton and St. John's-wood, are wedged together in inextricable confusion. Equestrians who have galloped across Barnes Common try to force their way through the crowd. Policemen remonstrate, drivers swear, horses kick and plunge, women shriek and scream, and for some ten minutes all is chaos and confusion. Then the great living tide sets back towards London, and cabs, carts, drags, barouches, riders, and pedestrians pour off the course in an uninterrupted stream.

Two things were noticeable in the crowd. In the first place, there was little really scientific interest in the race. Cognoscenti were few and far between. The crowd had come to gape at a sight of which it really understood nothing, and to shout and cheer for the leading boat merely because it happened to be leading. In the second place, there was a vast amount of sham interest. That an undergraduate should carry his own colours is intelligible, but why a boy who hawks vesuvians should decorate himself with "Cambridge for ever," or why every cabman and omnibus conductor should sport a rosette, it is hard to see. Upon the whole, the sight upon the banks was not exactly edifying. Of real sound healthy interest in the race there was very little. Of eating and drinking, and of horse play and badinage of an offensive sort, there was more than enough. Not one in a thousand of

the crowd upon the banks knew or cared a jot about the race. They had come for a day's outing, and a day's outing they had to their heart's desire. A suburban spring meeting in which the spectators assemble by thousands instead of hundreds, and in which nobody either knows or cares anything about the horses, would give a good idea of the spectacle presented yesterday on the banks between Putney and Mortlake.

*On the River.*—The luck has turned at last, and Cambridge, after one of the most closely contested races on record, was the victor yesterday. It would be affectation to deny that the public sympathies were on the winning side; and the hearty shouts which urged on the Cambridge men during their progress and greeted them on victory, the predominance of light blue among the ladies, and the outspoken generous satisfaction even of Oxford men, will be shared wherever an interest in the most celebrated aquatic contest of the year is felt. It was a gallant race. There were certain broad points of disparity between it and the last great race held on the same waters, but the competitors in pluck and endurance, and the spectators in depth of interest and keenness of sympathy, recalled the famous struggle between Oxford and Harvard in the autumn of last year. The same excellence characterised the police arrangements as then; there was the same impartial anxiety on all hands that the best men should win, and the same scarcely acknowledged hope that the best men might be found in the ranks which have gained the victory. From first to last there was nothing to mar the satisfaction either of the crews or of the countless thousands they numbered among their friends. No steamers were there to annoy the men striving against each other so gallantly; no clumsy or malicious oarsman pulled his boat athwart the course; no obtrusive barge drifted its way lazily and injuriously along the tide. Thus, for the first time since 1829, when this friendly contest between the two Universities originated, the Oxford and Cambridge boat race has been conducted under really favourable circumstances for those concerned.

No praise can be too high for the authorities having control over the river. All steamers bringing passengers had to pass through Putney bridge before half-past three in the afternoon, and were, for the most part, moored safely between Putney and Mortlake long before that hour; and on every steamer was stationed a policeman, with instructions to enforce, if necessary, the regulations laid down. There were also twenty police-boats which acted as masters of the ceremonies, now darting out and guiding intruders to a safe haven, now "dressing" the countless craft on the river's margin as closely as a good drill-sergeant does his men, and now steaming or pulling swiftly along their appointed portion of the course, and adding final touches of arrangement and words of caution to the closely packed boats and people at its sides. The early part of the day was occupied thus; whole fleets of steamers, barges, steam launches and row-boats coming through Putney bridge, and selecting or being marshalled to their several positions. Soon after three p.m. heavy beams and heavier lighters

were placed across the arches of Putney bridge, on its eastern side; and from that hour to the start all was expectancy and excitement. The two steamers left in the centre of the stream by Putney bridge, and off the Star and Garter, were appropriated respectively to the umpire and to the press; and were, with the exception of the gliding, ubiquitous police boats the only craft permitted on the boat course. On Mr. Chitty's steamer were assembled a goodly show of old University oarsmen and a few other distinguished aquatic champions, among whom the good-tempered, smiling face of Harry Kelley was pleasantly conspicuous. About 4 p.m. a small boat was pulled across from the steps of Fulham Palace to the umpire's steamer, and soon afterwards his Royal Highness the Prince of Wales, his Royal Highness the Prince of Leiningen, his Royal Highness Prince Teck, the Viceroy of Egypt's son, Prince Hussein, and Lord Alfred Paget, were seen in the bows, shaking hands and comparing notes with the leading boating authorities on board.

The weather was exquisite, but it did not suggest a spring day by any means, and had nothing about it to remind one that we are within a few weeks of summer and the merry month of May. The noble trees seen in such abundance on the river banks between Battersea and Mortlake seemed absolutely destitute of leaf or bud, and the rather desolate bareness of their far-reaching branches and twigs contrasted bravely with the warm and mellow haze which formed their background. Let the reader recall the finest December day he has ever known in England, one of the days when the bright glowing sunshine has overcome and pierced through the wintry mist, and lit up the bare earth with colour, and when the hues and tints of the empty gardens and fields, endowed them with a beauty which is full of promise, and he will realise exactly the glowing atmosphere of yesterday. Let him people this with the gay figures and busy animation of the Grand Canal at Venice on a fête day, and add the robust joyousness and loud-voiced excitement of our Derby, and he will have before him the scene of yesterday. There were good-tempered, bustling, joyous people everywhere. Above the railings of Putney bridge as many human heads could be seen as would have kept Temple-bar supplied with those articles of adornment from its foundation until now.

The little town of Putney was crammed; the tavern opposite the church, at the open first-floor window of which the Oxford crew sat in their dark blue as if on "view," to the intense satisfaction of the crowd balancing itself on the opposite kerb stone, and gazing upwards open-mouthed, exactly as the hangers on of the prize ring—the men who could be hired for sparring purposes at a shilling an hour—used to do on the afternoons when the editors of sporting newspapers held levees and received visits of fealty from pugilists. The Cambridge crew at the Star and Garter seemed more chary of showing themselves, the one member of it seen among the crowd of thirsty customers and betting men at the bar door appearing as if there by accident, and out of place. Every private house, too, seemed to be turned into a semi-public one for the time, and was full of guests; while at a comparatively

early hour in the afternoon the block at the narrow street corner was so great, that it was found easier to cross the bridge than to push through it, before putting off for either of the two privileged steamers in a boat. Look which side we would, it was the same, and long before the crews could be seen taking to their boats, the indescribable noise—half hum, half roar—by which a mighty crowd makes it known that the crisis it is waiting for is at hand, told us that the start was near. The Oxford crew won the toss, and, amid shouts of congratulation, took up its position some eight minutes before the rival boat, choosing the Surrey side, and the Cambridge men, who were also greatly cheered, took up their quarters on the Middlesex side, a few yards from Bishop's Walk. Mr. Chitty started them at once, when the Oxford boat led off, and kept slightly in advance of Cambridge for the first three or four hundred yards.

Now it was that Cambridge crept up, and took and kept the lead, Oxford straining every nerve to get in advance, and succeeding so nearly when approaching Chiswick as to stimulate her backers into offering another point. The great marvel throughout was the closeness of the contest, and the incontestible proof it afforded of the evenness with which the men were matched. It was a neck-and-neck struggle for nearly the whole of the time, and the utmost variety of opinion was expressed on the steamers behind the boats, as to whether, at given stages, it was Oxford or Cambridge which was gaining. When the two boats were abreast the Soap Works, bets were made that Oxford would be first through Hammersmith Bridge, just beyond; and when Cambridge led there, and Oxford put on a spurt at Chiswick, men reminded each other of Old Darbishire's tactics, and how he waited for the Harvard men before. Soon after this the weight of skilled opinion was on Cambridge's side, though several believers in Oxford declared their faith unshaken, and offered to back their opinions in the usual way.

At every bend in the river the Cambridge coxswain seemed to steer a little wildly, but the end, in this case, justified the means, and men forgot to criticise when it was seen near Mortlake that the Light Blue was to the front, and apparently certain to hold its own. When the gun was fired from the Ship at Mortlake, and it was known that Cambridge had in reality won by a length, it was as if the defeats of the past nine years were cancelled, and hats were thrown in the air, extempore banners waved, while the winning men, who seemed in excellent condition, were cheered and congratulated without stint. But if the scene on the Mortlake banks for the first quarter of an hour after the finish baffles description, the expression of the victorious crew demands a still more delicate and comprehensive touch. It was unaffected, and manly withal; but the glowing sense of satisfaction which beamed on every face, the half proud, half modest way in which they bowed to the compliments shouted to them, the shy dignity mingled with natural self-complacency, the unbounded delight which it was thought should be concealed, the intense relief at a result which broke for their University the run of ill-luck which com-

menced before any man in the boat had entered into his teens—all seemed to contend for mastery, and unless appearances belied them, there were no happier or more pleasantly embarrassed people in all that concourse than the young heroes of the hour.

To glance from the victorious to the defeated boat was to realise the bitter difference between success and failure. It was too soon for any other feeling than disappointment, and though the cheers of "Well pulled, Oxford!" were hearty, and were meant to be sympathetic, it was clear that they could not be accepted as consolation yet.

The enormous number of people present at this race was felt more than ever when it was over, and the masses began to move. It was like the touch of the wand in the fairy story to see the compact lines of boats break up, and the river's surface become so thickly covered with craft of every size and degree as to make it impossible for our steamer to proceed on the return journey, save at a snail's pace; while the swell and waves from many other screws and paddle-wheels put many an amateur oarsman, many women, and some babies in far more jeopardy than they supposed. Delays on the river, blocks on the road, pushing and crowding among pedestrians, curvetting and trouble among the horsemen, and then the hundreds of thousands gradually move towards their respective destinations, to tell hereafter how "the best and closest Oxford and Cambridge race ever rowed was the one in which Cambridge won back the victory after having been beaten for nine years running."

## The Race.

The start had been announced for five o'clock, and punctually on the stroke of the hour the Oxford men launched their boat at the London "hard," and paddled into the centre of the tideway amid a burst of applause from the spectators. Cambridge followed suit about eight minutes later, and the ringing cheers, repeated again and again, that heralded their appearance, testified unmistakeably how deeply the sympathies of the British public were enlisted in favour of the Light Blues. The following are the names and weights of the two crews, both of whom scaled on the morning of the race:

### Cambridge.

| | | st. | lb. |
|---|---|---|---|
| 1. | E. L. Randolph, 3rd Trinity | 10 | 11½ |
| 2. | J. H. Ridley, Jesus | 11 | 9½ |
| 3. | J. W. Dale, St. John's | 12 | 2½ |
| 4. | E. A. Spencer, 2nd Trinity | 12 | 4½ |
| 5. | W. H. Lowe, Christ's | 12 | 7¾ |
| 6. | E. Phelps, Sidney | 12 | 1¾ |
| 7. | J. F. Strachan, Trinity Hall | 11 | 13 |
| | J. H. D. Goldie, St. John's (stroke) | 12 | 0 |
| | H. E. Gordon, Trinity (cox.) | 7 | 12 |

| | OXFORD. | st. | lb. |
|---|---|---|---|
| 1. | R. W. Mirehouse, University | 11 | 0 |
| 2. | A. G. P. Lewis, University | 11 | 2½ |
| 3. | T. S. Baker, Queen's | 12 | 9 |
| 4. | J. Edwards-Moss, Balliol | 13 | 0 |
| 5. | F. E. H. Payne, St. John's | 12 | 10 |
| 6. | S. H. Woodhouse, University | 11 | 4 |
| 7. | W. D. Benson, Balliol | 11 | 13 |
| | S. D. Darbishire, Balliol (stroke) | 11 | 11 |
| | F. H. Hall, Corpus (cox.) | 7 | 7 |

From the above it will be seen that the two crews were as nearly as possible on an equality as regards weight, each averaging within a fraction 12 stone per man, though taken individually it was apparent at the first glance that the Cantabs possessed a very marked advantage in physique, their superior height and length of reach being particularly noticeable as they sat in their boat.

All being in readiness, the rival eights lost no time in taking up their allotted positions for the start, at the stern of a couple of skiffs anchored for the purpose about 25 yards apart, in a line with Putney Pier, though, as it struck us, they were moored somewhat nearer the Middlesex shore than usual. Oxford, with the proverbial good fortune that has so often befriended them during the last ten years, once more won the toss for choice of stations; and very wisely selected the Surrey berth, which was unquestionably the more advantageous of the two in consequence of the light wind and slack tide, it being almost dead water at the time under the Fulham shore. The start took place, as usual, under the direction of Mr. Searle, of Lambeth, who, having asked the customary question without meeting any response, gave the signal punctually at 13 minutes past 5, and the long pent-up excitement of the spectators found vent in a simultaneous roar, as the rival eights dashed away from the moorings. Oxford were the first to catch hold of the water, and the nose of their boat at once showed perceptibly in front, but the advantage was only momentary, as Cambridge, settling down to their work with amazing rapidity, were level in half a dozen strokes, and the two rowed oar and oar up to Bishop's creek.

Here the quicker stroke of Oxford, whom we timed at this juncture to be rowing 40 strokes to their opponents' 39, again took them in front, and in the next hundred yards they showed with a lead of some six or seven feet; but half-way between the Creek and Craven-point the Light Blues had recovered their lost ground, and the two boats were once more strictly level, though in somewhat dangerous proximity, the Oxford coxswain having steered a trifle over towards the Middlesex side. A splendid race ensued to the Point, without any advantage on either side, so far as we could judge from the steamboat astern—but as they passed Craven Cottage it was apparent that the Cantabs, notwithstanding the faster stroke of their opponents, were slowly but surely improving their position, and even thus early the fortunes of Oxford seemed in jeopardy. Off the Crab Tree Mr. Goldie

slightly quickened his stroke, and as they crossed the water for the Soap Works Cambridge led by fully three-quarters of their own length, and for a moment looked like going right away.

At this critical stage of the race, however, the Cambridge coxswain suddenly sheered out into mid-stream, doubtless with the laudable object of making the most of the tide, but the manœuvre was most inopportune, as by the time they were level with the Soap Works the nose of the Cambridge boat was pointing diagonally across in the direction of The Doves, and the rudder had to be put "hard on" to bring her straight again. This error of judgment—to use no stronger expression—enabled Oxford to pick up a trifle, and as the two boats shot Hammersmith Bridge, which was reached in 8 min. 9¾ sec. from the start, there was very little more than half a length between them. Even thus early in the struggle, however, the pace had begun to find out the weak places in the Oxford boat, one or two of the crew falling all to pieces, and all, with the exception of Mr. Darbishire, who stuck to his work splendidly, though very indifferently backed up behind, exhibiting a most unmistakeable tendency to row short, and miss the first part of the stroke. Off the Doves Cambridge were nearly clear, and had their coxswain been equal to the emergency, a little judicious "washing" might have decided the race there and then; but a moment of indecision caused him to miss the golden opportunity. Fully alive to the danger, Mr. Hall called upon his crew for a spurt, and, notwithstanding their demoralised condition, they responded gallantly to the appeal, and at the lower end of Chiswick Eyot it seemed as though a last desperate effort were about to change the fortunes of the day. Inch by inch, and foot by foot, the Dark Blues crept up. Slowly and almost imperceptibly, but nevertheless surely, the nose of their boat stole past rowlock after rowlock of the leaders, until at the top of the Eyot there was scarcely a quarter of a length between the two, and for an instant it seemed as though Chiswick Church—fatal spot—were once more destined to witness the downfall of Cambridge's hopes—for an instant only, however.

The next moment a well-timed spurt from Goldie, who had bided his time with most commendable judgment, completely altered the aspect of affairs. In less than twenty strokes Cambridge had recovered their original lead, and by the time the Bathing-place was reached there was a palpable gap between the two boats, and the great race of 1870 was practically over. We say "practically over;" for though the Dark Blues struggled on, and disputed every yard of water with the most indomitable pluck and resolution, it was palpable that they had "shot their bolt," and that nothing short of an accident could alter the inevitable result. At Barnes Bridge, Cambridge led by half a clear length, and from this point, favoured by the bend of the river, they maintained their advantage without difficulty to the finish, ultimately passing the winning post fully a length and a half in advance of their opponents, amid a most tumultuous scene of excitement. Time 21⅓ minutes.

A closer or better contested race it has never been our lot to witness,

for though neither crew, perhaps, came up to the best form of Oxford and Cambridge rowing, both exhibited throughout the whole of their trying contest the most indomitable pluck, and the victory of Cambridge—their first in ten long years—was as well deserved as it was gallantly achieved. All honour to the sons of the Cam for their perseverance under adversity which has at last brought its reward.

The time occupied in the race as taken by "Benson's Chronograph" was as follows:—The start was at 5h. 13m. 40½s., the arrival at 5h. 35m. 10½s.; the duration of the race being 21m. $3\frac{3}{10}$s., showing a difference of distance in favour of Cambridge of ¾ of a boat's length. The duration of the race in 1869 was 20m. 6½s.; in 1868, 20m. 37s.; in 1867, 22m. 39s.; and that of the Oxford and Harvard last year (4-oared), 22m. 41½s.

The result of the Boat Race reached Cambridge at about twenty minntes to six last evening, and on being posted outside the Government telegraph office, in front of which an immense crowd had assembled, great excitement prevailed. Cannons were fired, bells were rung, and a profuse display of bunting was made.

The rival crews and their friends dined together after the race at Willis's Rooms, the Hon. G. Denman presiding.

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## Commercial Navigation and its Prospects.

Some very severe and well-deserved observations on our maritime traders have been made at the recent meeting of the Society of Naval Architects, referring principally to the subject of sending overladen steam vessels to sea. And it seems tolerably clear that the test of experience, with all the bitter loss inflicted thereby on the public, is coolly left by our authorities to provide a remedy for the evil. This is a very serious subject, and the result has been dwelt on by the Society of Naval Architects in a train of remarks which do not reflect any credit either on the owners of those unfortunate vessels that have been lost, or on the system under which the Government permits such overladen vessels to go to sea. It is very well known (and we have given a glaring case of the kind in these pages) that if one captain has some trifling misgivings on the subject of his ship being too deeply laden, and if he has the slightest objection on the score of safety to take her to sea, another captain will do it instead, and that the said captain must not look again for employment from the parties to whom such ship and cargo belongs. The *London* was a glaring case of this kind, and her miserable foundering, and the unhappy loss of 220 human lives in consequence, was the subject of bitter comment in this journal. The loss of the *London* we considered, and always shall do so, was a disgrace to us as a maritime nation. And the system yet goes on! How long it is to do so remains to be seen. In fact, it would appear

that there is something rotten at the very core of our maritime trade. Ships are sent to sea to be lost. Overlading is known to be one of those causes, and yet it is permitted. However, there is a twofold advantage about it certainly, for it is not only a way of making money, but a quiet way of getting rid of redundant population. And those are no doubt two very desirable things. But, as we have said, how long is it to last?

Here is what the Chairman of the Society of Naval Architects says of the system:—

"There remains now, gentlemen, only one more subject upon which I desire to say a word, but it is a subject which has been very much—accidentally partly—in my mind of late, and a subject upon which I very much desire to take counsel with you, with the view of deciding whether or not it is most desirable that the Government of the day should be pressed to institute and to prosecute a scientific inquiry on the subject. It is a subject, beyond all doubt, surrounded with very great practical difficulty—I allude to the question of the load draught of merchant ships at sea.

"Every one has of late been deeply touched, I am sure, by what I am afraid we must now inevitably regard as the loss of that great packet the *City of Boston*, the most melancholy event of the kind which has occurred since the loss of the *President*, under somewhat similar circumstances, some years ago. You, gentlemen, must remember that at a period when hope was not abandoned (I am not sure that hope is altogether abandoned yet, although I am afraid that it is nearly so), a statement appeared in the public papers, in the form of an anonymous letter, proceeding from the town of Halifax, in Nova Scotia, stating that when the *City of Boston* put to sea she was, from the large cargo that had been stored in her, from 18in. to 20in. below her proper draught. I dwell specially on the fact that that was an anonymous letter. But, on the other hand, I think that those who read it will allow that, so far as the language and characteristics of that letter went, there was nothing in it which conveyed to the mind any idea that it was a letter written with other than honest and *bonâ fide* purposes. There was nothing in the letter to give the idea that anything like ill-will towards the parties connected with the *City of Boston* had in any manner dictated that letter. Gentlemen, I thought it my duty to put a question upon this subject in the House of Commons; and I asked the Board of Trade whether they had received any communication at all tending to confirm the statements in this anonymous letter. I had given notice of the question, and the gentleman who, in the absence of Mr. Bright, represents the Board of Trade in the House of Commons, very naturally and very properly applied to that well-known and distinguished house, the Messrs. Inman, to whom the *City of Boston* belonged, for information upon this interesting question. In the same spirit in which I have spoken with regard to the letter I desire to speak with regard to the Messrs. Inman, and I should think myself wholly without justification if I were to say a word upon this occasion which would reflect upon that well-known

and distinguished firm in any manner whatever. They have conducted that great service between the two countries for a long period with great success and great ability, and I entirely accept the assurance of the Messrs. Inman, and entirely believe that they would not willingly have risked the safety of their passengers by any improper proceedings.

But, gentlemen, we public men who undertake a public duty must not look to the right or to the left in carrying out that duty. I think we are bound, if we venture to touch upon such matters at all, only to regard the safety of the public; and the Messrs. Inman, in the representation which on their behalf was made in the House of Commons, entirely denying that any improper cargo had been stowed in the *City of Boston*, I have no doubt they only stated that which they fully and entirely believed, and which it was right and proper in their position that they should do. But, gentlemen, we cannot forget this. We cannot forget that the Messrs. Inman spoke from Liverpool, and that which was charged against the *City of Boston*, if true, occurred at Halifax. We cannot forget that the contradiction came from the agent of the Messrs. Inman at Halifax, and, therefore, from the very person who, if anything improper had been done, was exactly the person who would be responsible for that impropriety. Therefore, while on the other hand I do not for a moment mean to say that I do believe the anonymous letter, and that I do not believe the agent of the Messrs. Inman, yet it does appear to me that considering the dreadful event which somehow or other happened, and that if the contents of that anonymous letter were true, and the ship was laden—I will not say to this number of inches or to that number of inches—but if she was at that period of the year laden beyond the point which safety justified—I say, if that were the case, a grave and serious responsibility would rest upon the agent at Halifax, who allowed her to leave the port in that state, and I think it would be very desirable, for the sake of the Messrs. Inman, that the truth should be cleared up, and the facts known.

It does not follow, as a matter of course, even if she were overladen, that that was the cause of the disaster. She might have come in contact with ice, or she might have been lost from other circumstances, attributable solely, without blame to anybody, to stress of weather. But a serious statement has been made, and without intending to impeach the character of anybody, that statement has only been contradicted by a person who must be regarded as an interested party. Well, gentlemen, there stands for the moment this important and painful question with respect to that particular ship the *City of Boston;* but the effect of my having given notice of this question, and having put this question in the House of Commons, was one I had not for a moment thought of or foreseen. The effect of it has been that from a considerable number of quarters, from a considerable variety of persons, some speaking from one motive and some from another, but from all parts of the country, I have received communications, to an extent to which I had no expectation or idea, pressing upon me the immense importance of this question of overladen ships.

Two particular causes, as I am told constant causes, of disaster have been pressed upon my consideration. The first is the relaxation of a rule which did exist, but for some reason or other—I know not why—it appears to have been relaxed and abandoned. I mean the rule that every steamship (I do not know whether it applies to sailing ships or not) putting to sea ought to be provided with watertight bulk-heads. That is one point which has been pressed upon my attention. The other point which has been pressed upon my attention is the immense loss of life and property arising, as I say, partly from this neglect of watertight bulk-heads, but in too many instances from the fact of the ships proceeding to sea laden beyond the point of safety. I am anxious not to dwell more upon this subject than I can help, but I may state that I have been startled by the extraordinary amount, the dreadful amount of loss which has occurred within the last twelve months—I mean the loss of life and property in steamships at sea. The facts I am about to mention have already been the subject, on my part, of questions in Parliament, but I think you will perhaps regard it as well on this occasion, as I am alluding to the subject, that I should repeat those figures, because they are, I think, astounding figures.

The first fact I will mention is that to which I first referred in the House of Commons, namely, that from the 1st of this last January to the middle of March, that is to say, in the first ten weeks of the present year, there were lost no less than nine steamships. Two of those steamships were lost in consequence of those collisions at sea to which I have already adverted, one or two of the others were stranded, and the remainder, more than half of the whole, appear to have foundered at sea, and nothing is known of their end. Well, gentlemen, the other fact brought to my notice was this: this latter fact was brought to my notice by a simple quotation from a public newspaper that from the beginning of last July to the beginning of November no less than twenty-eight steamships were lost at sea. Therefore as to what may have happened during the months of November and December last I have no information at present; but considering the period of the year the too great probability is that they were not behind the other periods to which I have referred in the number of these melancholy casualties. But cutting out those two months of November and December, as to which I have no information, and taking the six months from July to November, and then January to March, we find a number of no less than thirty-seven steamships have been lost at sea. Gentlemen, I think you will consider this a subject for very grave and anxious consideration. Something must surely be wrong. I cannot imagine that with the skill of our seamen and the great skill of our naval architects in the construction of ships, that such a disastrous loss as thirty-seven steamships within the period of six months can have occurred without there being something wrong either in the construction or loading of these ships, or both.

My immediate and practical object is to take counsel with this meeting of scientific men competent to advise upon this subject, and to ask them whether they do or do not think that, under such circum-

stances, it is desirable that some member of Parliament should press upon Her Majesty's Government that it is really due to the safety of the public and the character of our commercial navy that a public inquiry should be directed to the settlement of this subject, and to endeavour satisfactorily to solve the question whether the difficulties are really so great that no plan can be devised for increasing the safety of our ships and the safety of the lives of our gallant sailors when they put to sea in those ships. Gentlemen, I ought not to quit the subject without reminding you that at one of our former annual meetings, shortly after a particular event of the same kind, namely, the loss of the *London*,* I brought this same subject before the House of Commons. I also brought it before this meeting of naval architects, and you will, I am sure, remember that this institution appointed a committee of the most competent and scientific gentlemen. That committee devoted a degree of time and labour to the inquiry which I consider most honourable and creditable to them, and produced a very able report. That report was presented to the Board of Trade, and I was sorry when I was told the other day by the minister who represents the Board of Trade that, upon full consideration of the recommendations of that committee, *the Board of Trade had not thought it desirable to carry out the recommendations* which that report contained. On the other hand, gentlemen, without any feeling other than a *bona fide* desire to increase the safety of the public, I am bound to say, from the answers I have lately received in Parliament, and from public events which are well known to you all, my impression is that the extent to which the Board of Trade now acts upon these subjects, and the amount of information which is conveyed to the Board of Trade with regard to these casualties, and further that the inquiries which are carried on by the Board of Trade, *are not so satisfactory, and do not give such confidence* with regard to the safety of the public, as it is very desirable for public interest they should do.

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## Monthly Magnetic Declination and Dip from 1865 to 1869 Inclusive.

[We have been favoured by the Astronomer Royal with the following important statement of the Magnetic Declination (variation) and Dip, the result of observations made with the superior instruments and arrangements employed at the Royal Observatory. Our readers have here the opportunity of seeing for themselves the annual rate at which this is now decreasing (the mean being about seven minutes nearly) from a source—the first authority of this country.—Ed.]

* In reference to the loss of the *London*, the circumstance of her being deeper than she ought to have been was a subject of general observation. Every one could see it, but no one could remedy it.

## Royal Observatory, Greenwich.

*Table showing the Mean Monthly Westerly Declination of the Magnet and the Mean Monthly Dip from 1865 to 1869.*

| Month. | Westerly Declination. | | | | | Dip. | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1865 | 1866 | 1867 | 1868 | 1869 | 1865 | 1866 | 1867 | 1868 | 1869 |
| | ° ′ ″ | ° ′ ″ | ° ′ ″ | ° ′ ″ | ° ′ ″ | ° ′ ″ | ° ′ ″ | ° ′ ″ | ° ′ ″ | ° ′ ″ |
| January ..... | ..... | 20 33 7 | 20 22 0 | 20 15 4 | 20 9 12 | 68 3 22 | 68 3 12 | 67 57 23 | 67 57 39 | 67 57 24 |
| February..... | 20 31 6 | 20 32 56 | 20 21 20 | 20 14 50 | 20 8 30 | 68 1 23 | 68 3 13 | 67 59 18 | 67 55 51 | 67 56 17 |
| March ..... | 20 32 25 | 20 31 44 | 20 23 26 | 20 15 23 | 20 8 14 | 68 5 8 | 68 3 8 | 67 57 28 | 67 57 15 | 67 54 59 |
| April ..... | 20 33 58 | 20 32 13 | 20 23 8 | 20 15 54 | 20 6 56 | 68 1 35 | 68 0 9 | 67 57 13 | 67 56 49 | 67 54 58 |
| May..... | 20 33 51 | 20 30 35 | 20 21 57 | 20 15 16 | 20 6 27 | 68 1 37 | 68 0 42 | 67 57 13 | 67 57 45 | 67 53 11 |
| June ..... | 20 30 36 | 20 28 47 | 20 20 27 | 20 13 20 | 20 4 51 | 68 3 1 | 68 0 17 | 67 58 10 | 67 56 23 | 67 53 20 |
| July ..... | 20 31 27 | 20 26 16 | 20 19 54 | 20 12 47 | 20 4 22 | 68 1 42 | 68 0 6 | 67 55 59 | 67 55 50 | 67 52 48 |
| August ..... | 20 33 1 | 20 25 13 | 20 19 36 | 20 12 57 | 20 3 44 | 68 2 25 | 68 1 24 | 67 56 52 | 67 55 28 | 67 55 9 |
| September ... | 20 33 1 | 20 23 39 | 20 18 57 | 20 13 19 | 20 1 47 | 68 1 13 | 68 1 2 | 67 58 59 | 67 57 23 | 67 56 56 |
| October ..... | 20 34 11 | 20 23 38 | 20 18 50 | 20 10 54 | 20 0 38 | 68 1 21 | 68 1 11 | 67 57 59 | 67 55 31 | 67 54 21 |
| November ... | 20 32 56 | 20 22 56 | 20 17 50 | 20 9 47 | 19 59 29 | 68 5 20 | 68 1 25 | 67 55 59 | 67 57 34 | 67 53 5 |
| December ... | 20 33 18 | 20 22 22 | 20 16 3 | 20 9 19 | 19 58 37 | 68 3 55 | 68 1 16 | 67 54 16 | 67 55 44 | 67 55 2 |
| Means..... | 20 32 43 | 20 27 47 | 20 20 17 | 20 13 14 | 20 4 24 | 68 2 40 | 68 1 25 | 67 57 14 | 67 56 36 | 67 54 48 |

G. B. AIRY,

*Astronomer Royal.*

## British Seamen scattered in the Pacific.

In the line of the Caroline Islands, in the Pacific, it is very well known that the current is perpetually setting strongly to the westward, as it does also to some distance northward and southward of that chain. We experienced it strong for two or three days before making Ascension, and especially so on the night we stood off Nuttie, which we barely fetched in the morning, though we had carried all sail through the night to keep to windward. Many instances have been related to us of the constant drifting of canoes westward from island to island, and the only feature indicating from whence they came being the make or fittings of the vessel, as all islands which are known to the Europeans, have been remarked by them when on their sundry excursions in whalers. Every island possesses some peculiarity of its own, with regard to its canoes, as well as its language; by which the natives of each, when drifted about, are able to explain whence they come. Nothing could be more striking than the difference of features, and the exterior appearance of the Ascension and Nuttie natives.

About the time of our arrival three canoes, with natives in them, were drifted on Ascension from Duperry or Wellington islands, fifty or sixty miles to the eastward; and it is a curious fact, that the woman confined on board the cutter on her passage up to Ascension after the attack on Nuttie, was drifted on to the latter island in a canoe from one of the innumerable islands in the Ralich chain, or the King's Mill group. She had been on Nuttie about two months when the attack took place, and by means of what she had acquired of that language, she stated that they were drifted to sea, herself and three men, off their native island Yepparn, that the men died, and that she had subsisted on a small portion of rotten bread-fruit for twenty-six or twenty-seven days, when she reached Nuttie. Here the natives would not assist her, but offered her no violence in her weak and miserable condition. This woman had never even heard of a white man, yet whether from terror at remaining at Nuttie after the scene she had witnessed there, she associated herself with them, and being "taken to," as it is termed, by one of them, she by her own desire accompanied him to Ascension in the cutter. I believe she was not only treated with humanity, but received every attention. Both she and her child are now living at Ascension with a European, with whom also are living two native children of Nuttie, whose mother destroyed herself, and whose father was no doubt among the number killed.

The residence taken up by European seamen on the various islands throughout the Pacific is most extraordinary. On Ascension they are dispersed in all parts round the coast of the island, residing with chiefs or petty chiefs, under their immediate protection, to whose tribe they are considered to belong, and whose people become, as it were, their working attendants or slaves, pulling them in their canoes, fishing for turtle for them, collecting shells, etc.; in short, doing

whatever may be required of them. The only compensation they require is in the shape of occasional small payments in pieces of tobacco. The chief perhaps receives nothing for a long period; but on the arrival of a ship when "trading" is carried on, he is presented in return for his protection and the services of the people of his tribe, with one or two muskets, an axe, an adze for making lances, powder, or a portion of tobacco, or whatever he may most desire; and this seems to be the sort of tenure by which the white men hold their settlement on the island.

When the chiefs have once engaged to protect their Europeans they have in general shewn great fidelity to the white men, or if the contrary has occurred, it is admitted that the fault has been with the latter, either from an irreconcilable temper, or failure in their promises and engagements. This is a check on the bad and dishonest propensities of some of the renegade European characters; since it must be the good feeling preserved with the native chiefs engendered by self-*interest*, as well as by attachment that must ever prove the best security of the white man, under the very extraordinary circumstances of their established mode of living among a set of savages. These people are jealous in the extreme of any violence offered to an individual of their own tribe by one of any other, and this often leads to immediate war, for they are keen at information or discovering any suspicious movement in another tribe.

The brother and refugee adherents of Narawak, with many others who still maintain a lurking enmity to the white men, have united themselves to a tribe on an island called "Tarbac" close off the north-east side of Ascension. Here they all reside, and seldom mix with others over on the main land. They say they defy the white men or any of the native tribes, their allies, but have as yet dared no aggression. Were any attempted, it is said that the five large tribes on Ascension, or certainly four of them, might be relied on to side with the Europeans. Those on Tarbac are aware of this, and the overwhelming force they will have to encounter will probably keep them quiet. Three renegade North American black men have taken up their quarters with these people and swear vengeance against the white men, on account of some former animosities. Martin, who acted as pilot to the *Larne*, a quiet sort of man, living abreast of Tarbac, was for some time apprehensive of an attempt upon his life by these men, and for a period of more than a month, he assured me his chief would never leave his side, and that upwards of a hundred people slept every night around him armed with spears and muskets, and that any man attempting to approach would certainly have been killed.

There are upwards of thirty white men now at Ascension, and six at Nuttie, and by accounts derived from several of them there are European and American seamen at present domiciled on the Admiralty Islands, north of New Guinea, on New Ireland, on New Georgia, on Pleasant Island, Ocean Island, some of the King's Mill Group, on Navigation Islands, on the Fiji Islands, and many on the

Friendly Islands. Most of the above are known to individuals now on Ascension, and there are probably more of the same description. The number of whalers cast away must also be considerable. There are seamen on Ascension who belonged to the *Falcon*, wrecked there, to the *Corsair*, also on some part of the Ralich Chain, and to two others. One wrecked on Gilbert Island, one of Hall's Group, and the other on Ocean Island, a mere sand bank in 28° N., a little W. of 180°.

The majority of Europeans scattered about the islands is undoubtedly composed of seamen who have deserted from, or have been wrecked in whalers. But there are others who have left small trading vessels, chiefly connected with New South Wales or the Sandwich Islands, employed in collecting tortoise shell, biche de mer, etc., and no small portion of their number also is composed of runaway convicts from the penal settlements. It appears their occupation is divided between collecting tortoise shell and breeding fowls, pigs, etc., for the supply of whalers and others that may call off for refreshments. At Ascension *money* of whatever coinage is valueless amongst them, and was actually rejected by the white men as useless to them. The articles of barter they look for in return for their shell or supplies are muskets, powder, ball, or lead, clothing of any sort, axes, adzes, beads, pipes, and above all *tobacco*, which actually constitutes the pay of the natives; and it is a most extraordinary fact, but not less true, that their fondness and avidity for this article was utterly unknown to them at Ascension until their intercourse with Europeans about six or seven years since. But it is now grown to such an extent that it passes current among them like money! With the smallest portion of it bread-fruit, cocoa yams, fresh fish, etc., were purchased from the canoes alongside the ship, while the only purpose to which they would apply a dollar or any other coin, was to make a hole in it and hang it round their necks. To *acquire* and immediately *enjoy* the proverbial characteristic of savages, was here also thoroughly exemplified: a fish, the instant he was safe in the canoe, was begun to be eaten *raw*, by gnawing and tearing at him with their teeth and hands, till they were surfeited. The same with tobacco, which they instantly crammed into their pipes, and lighted, and continued smoking whatever more might be obtained, handing it from one to another till the whole was consumed.

As money was of no use whatever, our purser bartered tobacco or slop clothing, as might be most advantageous, for fresh meat and vegetables for the crew, both at Ascension and Nuttie, procuring the usual certificates and receipts. By this means the supplies were obtained at a very moderate rate, and the pigs at Nuttie were very fine. The pilot was also paid in tobacco.

It was desirable to visit an island alluded to by Europeans at Ascension, called by them "Strong's Island" (perhaps the same as that marked in the charts "Single Island," to the S.E. of Ascension), but our provisions would not admit of it, as we had already completed twelve weeks from Macao, and by a close estimate, we mustered but sufficient for something short of five weeks for returning thither. An

occurrence at the above named island, was related by Edwin Rowland, who was present at it, seems to partake of a very extraordinary character. He called there in a trading schooner within the last year, having before been at the island. The captain very imprudently left the vessel and landed, when he and his boat's crew were seen from the schooner to be attacked by the natives on the beach, she being unable to render them assistance. At the same time a number of canoes were putting off from the shore towards the schooner, when she immediately got under way.

After beating about and finding it hopeless to recover their captain, his boat and her crew, etc., they stood off, and when in the act of tacking, a shot (affirmed to be either a *six* or *nine* pounder) was pitched close to the schooner. This was followed by four or five more shots in succession, which were extremely well directed, some of which it was said passed between the schooner's masts. From this circumstance it is strongly conjectured that Europeans were concerned in it, and, *if* all be *true*, it certainly appears strange how a gun of that calibre could have found its way to the island, and still more extraordinary, how it could have been worked and directed with such precision by mere native savages, or where the supply of shot and powder was obtained. Such was the occurrence as related, some of the details of which may or may not be true. It however appears certain, that the captain and his crew have never since been heard of, and that cannon shot were fired at the schooner.

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## REPORT ON THE MARITIME CANAL,

*Connecting the Mediterranean at Port Said with the Red Sea at Suez. By Captain Richards, R.N., Hydrographer to the Admiralty, and Lieut.-Col. Clarke, C.B., R.E.*

AFTER all the hopes and fears that have been kindly or considerately expressed against the successful endurance of this great work of M. Lesseps, we are enabled to draw something like a satisfactory conclusion, that the latter after all have been somewhat magnified, by the kindness, shall we call it, of the former. What a number of causes there were for anticipating fatal results, the level alone to be reduced by the summer heat, was to be sufficient to reduce the depth below the navigating mark for ships that would pass it, and yet we find in the report that even this omen is looked on with complacency. Thus we read in page 13 on this subject—"48, with regard to the question of evaporation, it is impossible to say that a hot summer will produce no appreciable effect on the water of the Great Lake, but it may be fairly predicted that no serious effect will result, sufficient to produce a disturbing influence on the general conditions of the Canal, and thereby affect its navigation."

This as a source of evil was formidable enough, but there were others no less so which seem to have been as easily disposed of in the "report." Thus in page 8, we read a no less important paragraph which says, "The greatest difficulty anticipated by those who were well qualified to form an opinion was, that the large quantity of deposit constantly being carried eastward from the Nile, would rapidly pile up against any artificial barrier that might be constructed, and form a shoal across the entrance of the Canal, through which it would not be practicable to keep a ship channel open, and on the correctness or otherwise of these views of course depended the success of the undertaking." M. Lesseps, however, boldly confronted the difficulty, and his decision has been justified by the event. "That the operations of nature have in some degree—indeed to some considerable extent—produced the result anticipated, is not to be denied, as will be evident from an inspection of Port Said which accompanies this report; but it is quite manifest, from the rate at which the accumulation of sand is taking place, as shown by the periodical observations of the French Engineers, and by our own examination, that any practical inconvenience to navigation from this cause may be considered as remote, but if at any future time it should arise, the remedy is sure and simple, viz., an extension of the breakwater."

Some little account of the breakwaters is interesting, and here we are told that "The western breakwater which extends for 6940 feet at right angles to the shore, and is slightly curved to the eastward towards the extremity, was commenced in 1860, and carried about 1300 feet, beyond which point and at a short distance from it was deposited a heap of stones that was surrounded by iron piles, and from its detached position was called 'The Island.' The work was then left untouched till 1866, when the breakwater was joined to the island, and it was continued to its present length and finished in 1868. From the main land to the island the breakwater is formed on its inner side, of a bank of rubble stones, surmounted by a promenade over which the spray breaks with a very moderate N.W. wind, and on the outer or sea point of concrete blocks, but beyond the island to its termination it is entirely constructed of large blocks of artificial stone, composed of one part of French hydraulic lime with two parts of sand, and some of which were transferred to it from the eastern breakwater. This latter which is also constructed of large masses of concrete is of more recent construction, it extends about 6020 feet, and converges towards the western breakwater."

Such then is the harbour of Port Said and such its facility of preservation—a mere extension outward of its breakwaters with some occasional employment for the dredge of a comparatively trifling kind. On this we congratulate M. Lesseps for his perseverance thus crowned with success, and our merchants and navigators who will profit by the Canal.

Following the report yet further we find some no less consolatory assurance of another kind. Thus in concluding these principal observations, we read in page 12--44, "Most of the physical difficulties

which it was anticipated would operate prejudicially on the Canal, if not altogether bar it as a navigable channel have certainly proved to be fallacious. The difference of level of the two seas, so far as it had any effect in producing a current one way or the other, is appreciable, the tidal observations which we were able to make were necessarily somewhat imperfect from want of time, but they were made at that period of the moon's age, when their effect would be greatest: the results show that in the southern portion of the Canal between Suez and the Great Bitter Lake, the tidal influence from the Red Sea is felt, there being a regular flow and ebb, the flood running in for about seven hours and the ebb running out for five hours. At the Suez entrance, the rise at springs, unless affected by strong winds, is between five and six feet, about half-way from Suez to the Small Bitter Lake, a distance of six miles, it is under two feet; at the south end of the Small Bitter Lake, a few inches only, while at the south end of the Great Lake there is scarcely any perceptible tidal influence. We were informed by the authorities at Ismailia, that since the Great Lake has been filled, the level of Lake Timsah, which was filled from the Mediterranean in April, 1867, has risen twelve centimetres or about four inches: and that its waters are continually running at a slow rate into the Mediterranean. Certainly this statement agreed with what we ourselves remarked, for we always found a current running northward from Lake Timsah at the rate of half a mile to a mile an hour. Limited however as these tidal observations were, they were taken with great care, and appear sufficient to show that, except at the Suez end, the tides will not materially affect the passage of vessels at that end, therefore vessels must regulate their time of passing; indeed the greatest difficulty which will be experienced will be not from the tides but from the prevailing N.E. wind in the Canal, which will make close steerage difficult in going from north to south."

Let us in conclusion for the present proceed to Port Said, of which we find the report speaking thus, "The doubts as to the practicability of keeping the Mediterranean entrance open have been so far dispelled by experience, and may it is believed be dismissed altogether."

As to any difficulty of approaching Port Said by steam ships under ordinary circumstances there is none; the coast is very low, but the masts of the shipping and the high lighthouse are conspicuous marks at a good offing, and it is only necessary to bring the latter on the bearing pointed out and steer for it. It is certainly not recommended to enter at night unless with the aid of a pilot, and under exceedingly favourable circumstances, or with a small vessel whose draught would permit her to anchor between the breakwaters; nor would it be prudent to run for the port in a gale blowing on shore. In this respect, indeed, Port Said may be considered under the same condition as Alexandria, there is neither more nor less danger in the one case than the other; and in either there is sufficient sea room. Although the canal itself will not be used by sailing vessels, it is probable that such vessels will frequent Port Said, and there is no reason why in moderate weather they should not enter the inner basin, with westerly winds

however great care must be observed not to be set to leeward, or on to the East bank, or to miss the port, and with contrary winds steam tugs will be necessary. In moderate weather the anchorage outside is safe; but it is strongly recommended that sailing vessels should not approach the port in weather which would render the anchorage outside unsafe.

We find some interesting information in the *Daily News* on the subject of the conservation and expenses of the Canal, which we are desirous of preserving here, as well as some trite remarks of a hydrographic nature that are well worthy of attention. It is to be hoped that these matters will be set right, for the position of rocks under water, or above water, should not be allowed to remain doubtful in a close navigation as that approaching Suez. Thus we are told:

M. de Lesseps' statement that £320,000 will be required this year to complete and improve the works between Port Said and Suez, and that a single English company has put down in its calculations an annual payment of £100,000 to the Canal, are both suggestive. We have something to say respecting the conditions under which ships make the voyage from sea to sea, but shall deal with M. de Lesseps' financial estimate first. It points, we are satisfied, to improvement rather than completion. That ugly stumbling block, the Serapeum rock, has been removed, and according to the captains or navigating officers of the ships which have passed through most recently, the portion of the Canal in which it lay is now one of the deepest in the whole distance. But there are other things required before the great work can be pronounced complete. The project for doubling the width of the Canal, so that vessels should be enabled to pass each other at all parts of it, may be passed by as needless or premature. Ships can be moored and can pass each other easily at Kantara, at Lake Timsah, and at the Bitter Lakes; and it is not likely that in our time the traffic will increase to an extent which will demand greater accommodation than this. But there is other and more important work calling for expenditure, which, as we have reason to believe, have been scarcely touched since the inauguration, and towards the completion of which £320,000 will go but a small way. These are broadly the breakwater on the Damietta side of Port Said; the walling some thirty miles of the banks of the Canal with a stone covering which should be three yards wide and a yard thick; and a far greater amount of dredging than has taken place for months.

We have been at some pains to collect the latest information respecting the condition of the Canal from men on the spot, many of whom have been favourable to it throughout, but who are unconnected, commercially or financially, with its fortunes; and the reader may accept the conclusions arrived at as based upon recent and authentic information. The breakwater at Port Said has, we are assured, already verified all that was predicted of it in this journal, and by the engineering authorities present at the opening. The water from the Damietta side is charged with Nile mud, which filters through the interstices between the monster blocks of concrete, and is making a

deposit inside the harbour, which, though insignificant in extent, is important as an indication of what must follow unless the breakwater is made solid. The necessity for the walling of the sides of the Canal received practical illustration a few weeks since, when some thirty tons of sand were blown down or slipped into the water in one lump during the *Khamsan*, and when the railway between Suez and Cairo was blocked up; and it seems admitted on all sides that the many powerful dredges lying idle could be employed with advantage to a far greater extent than they are now. M. de Lesseps and the managers of the company must be presumed to know their own business best, and there may be sound reasons for proposing to limit the expenditure on improvements to £320,000; but the shipping agents at Port Said and Suez, the people anxious for their own sakes that the Canal should attract as much European and Indian traffic as possible, are out-spoken in their complaints, and public opinion on the spot is by no means favourable to the management. That fresh capital must be raised before the Canal can be made perfect even in its present proportions, and that its administration must be purified from the taint of bureaucracy before it can be attended by commercial prosperity, are the points urged most strongly upon strangers by those who maintain, almost angrily, that neither the shareholders nor the public are reaping the advantages which should accrue from the Canal's success. No one doubts the permanence of this success now. The doubts and sneers of six months ago have given way to complaints that M. de Lesseps and his colleagues do not go sufficiently with the times, that the fact of having made the Canal does not qualify them for managing it, and that departments and staffs of clerks have been multiplied to an extent out of all proportion to the necessities of the work. The system of managing the transit service is declared to be a vast mistake, being one of large salaries and small results, and we are assured that since the opening, station after station between Port Said and Suez has been given up, until there are none left save those two termini and Ismailia. Again, by Article 3 of the new rules for the navigation of the Canal, "each vessel measuring more than one hundred tons has to take a Company's pilot while passing through, who will furnish instructions as to the couree to steer, the captain remaining responsible for the conduct and management of his vessel;" and it is complained that no guarantee of efficiency is given with the pilots whom the ships are thus bound to employ and pay for, and that such pilots are uncertificated. Vehement objections are made, too, against what is described as "the pinching policy" of charging fees for small and, as it is said, needless services, such as prohibiting all independent search for articles which may fall into the Canal, and charging salvage on them when found by the officers of the Company. Ships' anchors for example, are lying in the Canal at this moment because of their owners' unwillingness to pay the charges for redeeming them. Anecdotes are rife, too, concerning the rigid formalism which pervades some of the many departmental rules. We are assured, for example, that when the steamship *Queen of the South* arrived at Suez some weeks since

from Bombay, she was not permitted to enter the Canal, because she had what is called "a list," that is, she hung over on one side, a circumstance which had not prevented her making a prosperous voyage from India, and which, it was maintained, could not have affected her progress through to the Mediterranean. The authorities at Suez insisted, however, on this "list" being put right, and the ship had to be unladen, *at a cost of fifteen hundred pounds*, and her cargo repacked. When this was done she drew, and we are assured, one foot and a half more on a level keel than she did before, but the letter of the regulations was complied with, and she went through.

We have little doubt that there is considerable exaggeration whenever the drawbacks of the Canal, or the demerits of its management are under discussion; and it may easily be that the cloud of detraction in which M. de Lesseps and his friends were enveloped up to the moment of their final triumph, still hangs over their heads. There were necessarily an enormous number of people thrown out of work, too, when the formation of the Canal ceased, and it is but natural that these should be lynx-eyed and many-tongued in pointing out defects which seem to prove the necessity for a change in management, and for the employment of different hands. Still, after making all allowances for these fruitful sources of misstatement, it seems clear that the Canal's usefulness might be developed to a greater extent than at present; and that if any scheme could be devised by which the *amour propre* of the original projectors could be protected, while new blood and fresh capital could be thrown into the concern, the public benefit would be considerable. It would be ungracious to even seem to carp at men who have done so much in the teeth of so many formidable and, as the world said, invincible obstacles; but the real question is, are the means at the disposal of the present proprietary and management sufficient to give a legitimate development to the Canal? And when we find such a sum as £320,000 quoted as the estimated expenditure for the coming year, we cannot, in the face of things as they are, and with our knowledge of the sums expended in mere administration, believe that the enterprise has yet arrived, or is in the way of arriving, at the stage of commercial prosperity to which we and the rest of its well-wishers look.

Passing to the English firms who put down large sums in their calculations as payments to the Suez Canal, we have a few very plain words to say respecting the conditions under which their ventures enter the Red Sea. We have before us evidence which is simply indisputable, that the existing charts of that sea are inaccurate; and it has been put beyond a doubt, by independent investigations made within the last few weeks, that certain dangerous islands in mid-water are some four miles out in latitude. It happens rather oddly that there are two sets of islands called "The Brothers" in the Red Sea. Respecting one of these, a group to the southward, we have nothing to say; but the other, falsely given in the Admiralty chart as in latitude 26 deg. 22 min., and consisting of a couple of flat islands, said to be sixty feet above the sea's level, but seeming to have far less elevation,

and with deep water right up to them, are simply traps for ships whose captains steer by the Government chart. Independent observations were taken from three different vessels last month, and with the same result; and according to the Arab pilot on one of them, "All Peninsular and Oriental captains know that—charts no good—these Brothers much out—three mile, four mile, God knows. I take big ship down Red Sea long time since—go right ahead, full steam; I smoke my pipe on bridge—think all right—when I look up and see Brothers close to—so close that my ship very near catch him."

According to the same local authority, the islands Mussamoroo and Delgabe, and "much more islands in Red Sea," are "quite many miles out, every one know that;" and the information furnished us by correspondents, for whose trustworthiness we vouch, makes it seem more than probable he was right. We pledge ourselves, however, to the example quoted, and one instance is as good as a hundred for proving the necessity of inquiry. So long as the navigation of the Red Sea was almost confined to native dhows and to Peninsular and Oriental captains using their own company's charts, an error more or less in the map published under the authority of the British Admiralty might not be productive of any very serious disaster. But now that steamers of all nations are being sent through the Canal, and the Red Sea has in consequence become a maritime highway, it is of the first importance that it should be resurveyed. That the soundings published officially should be chiefly negative, and often only reach to a third or fourth of the actual depth, is of comparatively small moment. But that rocks, reefs, and shoals should be given as deep water, and deep water as rocks and reefs, is a fact so pregnant with disaster, so infallibly certain to lead up to catastrophe and loss of life, that it behoves all interested to urge its remedy with the least possible delay.

The interesting "Sailing Directions for the Red Sea" say the Arab pilots may be trusted implicitly, and that their local knowledge renders them invaluable guides to the mariner. This was doubtless true when the book was published. But since the opening of the Canal every idle vagabond in Suez has dubbed himself a pilot, and proffers his services to ships' captains, who in many cases accept those services with a confidence which is positively staggering to residents. There is no Trinity Board, and no system of certificating pilots in Egypt, be it remembered; and written testimonials are bequeathed, or lent, or hired, or stolen, with facility. Given, charts which are untrustworthy, pilots who are ignorant, and rocky reefs such as "The Brothers" cropping up like the Serapeum rock where least expected, and it seems clear that sea-going England should take some steps to alter the conditions under which she avails herself of the Canal's success. That success was doubted so long and so obstinately that we have not even yet mastered its effects and probable results; among the first of which should be a new survey of the Red Sea, and some guarantee that the administration and management of the Canal are commercially sound.

## The Icy Atlantic.

"When the ship in full sail with a favouring gale
Holds proudly on her way."

Busy old time with his steady step, sometimes too fast and sometimes too slow to please all of us mortals, has again brought us the cheerful spring, and along with it the signal for emigration from our shore. But it has done more than this. It has brought us accounts from the Atlantic of disasters so great as have not been known for many years. Thus we read in the Daily prints :—

"*Wrecks and Wreckage in the Atlantic.*—Vessels which arrived at Liverpool, on April 8th and 9th last, report having passed an immense quantity of wreckage in the Atlantic and at the entrance to the Channel. The captain of the *Sedberg*, which has arrived in the Mersey from New Orleans, had a fearful passage."

Will that spring bring a cheerful summer to those who are for trying the soil of another clime? May it be so! But before they embark we would read them a lesson or two of what has befallen their countrymen on the treacherous sea,—those who left us, as they will do, on the same errand years gone by. Through their influence it may lead to more care on the part of those who have charge of them. And if our warning conduces in any way to this good end, and leads to their being safely landed on the distant shore of which they are in search, our lesson will not have been read in vain.

When Dibdin of old sang the "Dangers of the Sea," he forgot all about *Ice!* The bard of the ocean, the favourite one of the British seaman, always made light of danger! His was a nobler theme. And although celebrated in song those of old "rude Boreas" in the Bay of Biscay, a navigation where ice is little known and less thought of, the love of country and loyalty to her throne were more appropriate and more noble subjects than an ice-clad ocean for the seaman's muse.

"Go patter to lubbers and swabs do you see
'Bout danger, and fear, and the like"

might well be replied to such matters. Has not England reaped the benefit of those principles with which he nerved the British seaman, and have not her wooden walls rung "again and again" with the thrilling cheers of those whose glorious achievements were before them, and performed deeds of valour that have raised her to that high station which she fills in the foremost ranks of the world? How often "mid storms on the ocean," while it was yet lashed into foaming billows by the furious gale, have those gallant hearts in jovial companionship over "the flowing bowl" pledged "sweethearts and wives" far away, and in Dibdin's inspiring song bid defiance to the enemies of their land, and given ample proof that

"While other lands tyrannic sway enthralls
Britain's best bulwarks are her wooden walls."

Such were the themes of Dibdin, and how often has the sea, too, been the poet's theme, with no less claim to it than the deeds of which it has been the scene! If the land has its charms, so has its sister element the sea. If the fairest features of the elder-born, in sunny or in wintry climes, have claimed the poet's strain, so have those of the majestic sea. There is no landscape, however fine, that cannot be equalled in magnificent grandeur by the sea. Boundless to mortal sight, fathomless *considered* in former times, fair, but alas, too treacherous, the sea has been looked on as the emblem of eternity! Whether seen in its most inviting or its most terrific aspect, the sea ever presents a picture suggestive of the most profound reflection. Speaking at once by its comprehensive simplicity through the eye to the innermost recesses of the heart! Were ever grandeur and majesty combined, they are so presented by the sea!

What has become of the steam-ship *Pacific*, she left our shores a year or two ago.

"Where is she like a well-trimmed bride,
She sailed in bright array,
And light hearts with her on the tide
Embarked,—but where are they?"

Alas! the question has not yet been answered, and the only clue to a solution of it is afforded by the following letter from New York, dated 26th February, 1856. And the same may be said of the late *City of Boston*.

"Eighteen weary, disagreeable, stormy days brought us on Sunday morning to New York. The captain, who has crossed the Atlantic 243 times, declared he had never had such a bad trip as this. The ship had scarcely got out of the Mersey when the head wind began increasing to a gale, against which we had to fight, until we reached this shore. When two days out the fog became so thick we could not see the length of the vessel. On the third day floating ice began to make its appearance, increasing to such an extent that we could only feel our way. For two days and nights we kept crawling along, the captain hoping to get out of it every moment. Fog, fog, fog, nothing but fog and ice!

"On the third day at seven o'clock in the morning we saw a spectacle which none on board will ever forget; it was, in fact, the finger of Providence, and some more deserving than myself must have been on board. The whole veil of fog rose like a curtain, and we looked upon an ocean scene, beautiful, fearful, and grand. The atmosphere as far as the eye could reach was clear; the sun shone brightly on a continuous chain of icebergs above a hundred feet high, intermingled with fields of ice. Chain after chain burst upon the sight, and the view was awfully impressive. In a less time than it has taken to write this, the curtain descended, and all became obscurity again. The captain took the hint and turned his ship towards England for the remainder of the day, and towards the south at night, not resuming his course to America until the following day.

"After eighteen days, we arrived at New York, where we learnt that the *Pacific* another steamer belonging to this Company, which sailed fourteen days before us, had not arrived, and I fear she is lost, with all on board."

Search too has been made on either side of the Atlantic, but the "chain after chain" above mentioned, only suggests the fearful reality that such ice was fatal to her. But a few days before it was providentially revealed to the steam-ship *Atlantic*, in which the author of the foregoing letter left Liverpool fourteen days after the *Pacific*. For as yet, no living soul, nothing, no vestige of her, has been found to reveal a tracing of her fate.

Were the same question asked about that once fine steam-vessel, the answer conveyed in the following paragraph would state all that is known of her.

That ill-fated screw steam-ship *City of Glasgow*, with her 480 souls on board, has long been given up. As may be remembered, she sailed from Liverpool on the 1st of March, with 111 cabin passengers, and about 293 steerage, her crew numbering seventy-six, including the commander, Captain Morrison, and from the period of her clearing the Mersey up to the present moment, not the least tidings have been heard of her. The breaking up of the immense fields of ice to the northward of the bank, which were borne down the Atlantic in masses, it is said, of some 200 or 300 miles in length, no doubt overwhelmed the vessel in an attempt to force a passage, and caused her almost immediate destruction, not a soul escaping. The *City of Glasgow* and her cargo were insured for £50,000.

What a comfortable assurance that last sentence must have been to the relatives of the 480 individuals who perished in the wreck of that ill-fated vessel. One is inclined to ask—Did they, or even the owners of the vessel obtain even a portion of that?

Well, it is truly said—"What can't be cured, must be endured;" but it is disheartening—nay, indeed, it is appalling—to reflect how soon a crowd of human beings, embarked in the strongest of ships, may be launched into eternity in encountering ice! But the cautious, wary seaman says,

> "When treacherous fog prevails, oh, then beware,
> For danger, wreck, and death are lurking there!"

Concealed as it might be in a dense fog, the ship may run headlong against a berg as she is skimming along on her peaceful course, and in such a direction that the very effect of the concussion may bring the towering mass upon her decks, burying her in its fall, and carrying her by its ample masses with all on board to depths below!

The oversetting of these bergs is a common occurrence. Thus we find Admiral Robinson noting in his journal on the Labrador coast,—"Observed an iceberg oversetting, and many appear breaking up. When the action of the water, or the raised temperature of it (from the Gulf Stream), dissolves the foundation of the floating masses, the superincumbent weight topples them over, after the manner of the

splendid somersault we have now witnessed. This change of poles, however, produces of course diminished height, but no great change in their character, the submarine portion presenting on being brought into the upper world the same appearance as before."

A ship being under such a mass as that alluded to would no more be seen. One crash, the horrors of which would be too painful to dwell on, and all is over. But when icebergs are seen under favourable circumstances, when the sky is clear, the sea smooth, and the wind light, they present the most imposing spectacle. *The Voyage of the Chanticleer to South Shetland* placed that vessel frequently in the midst of them, and the following description was compiled by the author of that work from the notes of one of her officers. Pursuing her course down to that southern land on a scientific expedition, we find them thus alluded to :—

"The weather being remarkably fine, and the sea smooth, we had an excellent opportunity of witnessing the beauties of the surrounding icebergs, for it requires a brilliant sun and a light calm day to see them to advantage. It is then only that the glowing descriptions which have been given of them can be realised. At other times they resemble mere floating mountains. A light air wafted us alongside one; indeed, we actually came in contact with it, and by means of spars boomed it away from the sides of the vessel without receiving any damage whatever. The height of it was about eighty feet, the sides of it presenting a surface of the most exquisite polish, surpassing even that of the boasted Parian marble; it was of a beautiful cerulean colour, perfectly translucent, with veins of an elegant verditer. In fact, the whole was splendid and magnificent, and its variegated colours afforded us a treat which it was worth while coming even to South Shetland to witness."

Thus the dangers of these floating mountains depend on the state of the sea and the weather. The *Chanticleer* rubbed her sides upon one with impunity; and Admiral Robinson, above mentioned, says :—"During the war, in the *Prometheus*, I used to work round icebergs and batter them with shot, for exercise; *en revenche*, their kindred have often frightened me out of my life, and fragments have knocked against mine ancient favourite (the ship he commanded) more vehemently than was good for her."

The beauties of icebergs have been alluded to by navigators, as the author of the foregoing observes :—"Much has frequently been said about the grand and imposing appearance of icebergs, and the fantastic shapes of these floating mountains, gilded by the glorious rays of the sun, together with their enormous magnitude, in part justify it. It is not often, however, that the sun shows his face here; and when he does not they lose all their borrowed splendour, and appear nothing more than huge masses, void of interest to the spectator except as objects of danger. The 'fairy palaces with gilded domes,' which fancy pourtrays in their rugged forms, vanish with the departure of the frost and the sunbeams which gave them birth.

"We saw some very large icebergs in the course of the day, many

between two and three hundred feet in height, and double that in extent. One that we subsequently saw was estimated at two miles in length, and between three and four hundred feet in height. But if the magnitude of some of these icebergs produce astonishment in the beholder, how much would this be increased when we consider that only one-seventh part of them may appear above the surface. Thus, an iceberg two hundred feet above the surface may have fourteen hundred feet below it, making a total of sixteen hundred feet.

"This conclusion has been formed from experiments in the North, made with solid cubic pieces of ice; but it is evidence that cannot hold good entirely with icebergs, because they are far from being cubes, and must, in consequence of their varied forms, have much less weight above water, and consequently will not float so deep.

"Having made some experiments of this nature, I deduced from them that in cubic pieces of ice one seventh part only remained above the surface of the water. I also placed a cone of ice on a cubic piece from the same iceberg, and found that the cube easily floated and sustained the little pyramid, the height of which was more than double the depth of the cube below the water. I also floated irregular shaped masses, and found their heights above the surface to vary considerably. In some it was equal; in others it was greater than the depth below it, proving that no inference can be safely drawn as to the depth to which an iceberg extends from the surface with reference to its height above it, and that all depends on its form.

"In corroboration of this, I may further observe that while we were in contact with the iceberg off the island, we determined its height, with reference to the vessel's masts, to be not less than fifty feet. Now this would have required a depth of 350 feet to float in, according to the conclusion deduced from a cubical piece; but it was floating in ninety-six feet, for we obtained soundings at the same time with sixteen fathoms of line.

"Icebergs are justly termed marine avalanches, and are formed in deep ravines, being a collection of snow and ice accumulated in some sheltered precipice. In course of time the part next to the precipice becomes melted, and it is launched by its own weight with a prodigious crash into the sea beneath it."

These observations are highly interesting in reference to the depth at which icebergs float. There can be no doubt, however, that many ground on the banks of Newfoundland, and deposit on those banks fragments of rock and gravel which they bring with them from the place of their origin.

The cliff of the frozen ocean of the Arctic regions is, of course, the birthplace of these formidable dangers of the North Atlantic, as that of the Antarctic is of those of the Southern Atlantic; and as the former finds a ready outlet for them out of Baffin Bay, by Davis Strait, they are found to be more abundant from that source than from the sea to the eastward of Greenland. When a northerly wind prevails in those seas, they float majestically before it, those of Baffin Bay sailing down the coast of Labrador by Newfoundland, thence gaining

the more temperate waters of the Gulf Stream, and reach about as far as lat. 40° N. and long. 40° W., in the middle of the Atlantic Ocean. Whereas those east of Greenland, long before they reach the northern latitudes of Great Britain, are swept away to the eastward by the S.W. wind, which, with the warmth of the surface water, it is said, keeps a considerable portion of the coast of Norway free from ice. Thus it is that the shores of our island are clear of those floating masses, while they are common enough on those of Newfoundland, and many miles before Newfoundland or America is approached, lurking in the sea, perhaps under cover of fog, are ready to dispute the right of way with any ship that has the temerity to try her strength with them. Not that our seamen have the hardihood to do this intentionally; but there are sleepy ships, as well as others that are wide awake, there being a soporific influence in the former which effectually closes the eyes of all on board—excepting, perhaps, the man or the boy at the helm—and the first intimation of the presence of an iceberg to these is a collision, which has proved that ice is stronger than even wood and iron by the rush of the sea through her bows, a prelude to the ship being abandoned, if she does not founder, head foremost, with all on board. This is no exaggerated case, as the following, from many others, will prove:—

A letter from St. John's, Newfoundland, says, "The barque *Rose*, of Plymouth, water-logged and abandoned, with her ensign (union down) union jack flying, and a piece of plank displayed on which was written, 'July 5th, 1856, barque *Rose*, of Plymouth, ran into an iceberg in long. 46° 50′ W., lat. 49° N., staving in all the starboard bow, taking away bowsprit and foretopmast, ship making water fast, all hands employed at the pumps,' was seen on the 15th July in lat. 47°, long. 40°, by the *Hebe*, Captain Richardson, arrived at this port. The *Hebe* further reports a large blaze was seen the same night, supposed to proceed from the disabled ship having been set fire to by some other vessel.

This vessel "ran into an iceberg" and it can scarcely be supposed that she did so with her eyes open. And here is another which met with a similar fate, announced like the former in the papers of the day.

Intelligence has been received at Lloyd's of the total destruction of the ship *Mary*, of Yarmouth, in the Atlantic Ocean, whilst on her passage from Liverpool to Boston, on the 15th February, the ship being in lat. 47°, long 43°, she was suddenly beset by icebergs, and before the captain could extricate the vessel, she was struck on the port bow and her timbers stove in. Through the aperture the water rushed, and the crew had barely time to get out the boats when the vessel went down. From the suddenness of the catastrophe, they were unable to save food or water, and for five days and four nights they were tossed about in open boats without sustenance, two dying from exhaustion. On the 20th February, 1854, they were descried by a fishing vessel, and they were landed at St. John's, Newfoundland, where they received every attention that their deplorable state required.

These are not solitary cases of such *accidents*, they are merely quoted

to show what may be anticipated by the passengers of our emigrant ships, unless precautions are adopted to avoid them.

Admitting that the "good ship," as our merchant vessels are generally termed in their papers, with her living cargo reaches half seas over and escapes the perils of the sea, such as springing a leak and foundering in a few moments, or taking fire and burning to the water's edge, or coming in collision with another ship and sinking shortly after, a very common occurrence in these days in sleepy vessels, such as those above alluded to,—and admitting that she is not abandoned or water-logged, or she has to run the gauntlet of the ice. The duty of the captain has now become still more important than before. For it is to him that all on board are entrusting their lives, and he is to take those precautions to protect his ship from a similar fate to that of the *Rose* or the *Mary* above mentioned, and as soon as the vessel has reached the longitude of 40° W. these cases begin. The time of the year is of little consequence; icebergs may be expected at all times, and precautions for meeting them should be adopted.

Since our intercourse with America has increased so much as it has of late years, our acquaintance with icebergs has become proportionally extended. In the olden time, as we have shown, we heard little or nothing about them; but no doubt they were as common then as they are now. In those days, however, that acquaintance with them was limited to ships of war, among which such accidents are unheard of. And why? Because a good look-out is always kept. But when our mercantile shipping have to pass this same icy sea, our papers abound every year with such accounts as we shall now append to these observations.

When steam-power commenced its repeated voyages across the Atlantic, one of the earliest accounts we had of this icy sea was from Captain Hosken, who commanded the *Great Western*, and who says of it,—

"Under the impression that ice to the extent which it has been seen this year has never before been heard of in these latitudes, I give you the following particulars for the information of your readers:—On Sunday, April 18th. the ship steering west, at six p m. first saw one iceberg on the starboard bow; at 7.30 passed it, at that time four or five others in sight; at 9.15 passed several small pieces of ice—slowed the engines. In a few minutes after, the ship was surrounded with light field ice, which appeared similar to a field I ran through on the 11th February, 1839. This induced me to go slowly, with the hope of getting through, as I had done on that occasion, but by 9 30, finding it became closely packed and much thicker, prudence dictated our escape by the same channel we had entered. I then stopped and attempted to get the ship's head to the eastward by turn ahead and astern until there was room for her to come round. In the course of this operation the ship had occasionally at least two streaks heel given by either wheel passing over large masses of ice. At 10.15 succeeded in getting the ship's head to the eastward, and by 11 entirely clear. From that time went slowly, passing several icebergs; the night at

times very clear, the Aurora Borealis very bright. At 3.30 a.m. of the 19th, again got embayed in the ice, stopped, hauled short round on our heel, and steered out E. by S., coasting the ice for five or six miles; 4.20 kept her to the westward, running through innumerable icebergs until 8.30, when we passed the last iceberg and point of field ice.

"When the sun arose, the ice was visible as far as the eye could reach in an unbroken line from N.E. by E., by the northward to N.W. by W., at the same time icebergs innumerable in every direction, forming one of the most magnificent sights I ever beheld.

"The first iceberg we saw was in latitude 43°, longitude 48° 30′; and the last in latitude 42° 20′, longitude 50°. I am quite sure there was an unbroken field of that extent; and from what I heard from Captain Bailly, of the American packet-ship *United States*, I have no doubt the field ice extended, with very little break, to latitude 40° 30′, where Captain Bailly fell in with it on the morning of the 18th.

"Some of the icebergs I estimated at little, if at all less than a mile long, and from 150 to 250 feet high. This field of ice was in large masses, some of them not less than twenty feet square, by six feet thick or more.

"The temperature of the water, when within two miles of the first iceberg seen, fell suddenly from 50° to 36°; and the air no higher than 32°.

"Immediately after passing the last ice the water became 36°, and the air 42°."

*(To be completed in our next.)*

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THE RALEIGH ROCK—*China Sea.*

Foo-chow, 27th February, 1870.

SIR,—Will you kindly insert the following lines in the *Nautical*, about the position of Raleigh Rock, China Sea.

Extract of the Journal of North German brig, *Marie*, on the voyage from Newcastle (Australia) to Foo-chow. On the 17th January, 1870, were in 14° 19′ N. Lat. and 146° 33′ E. Long.

On the 18th January, Nine a.m., had the bearing of Tinsin, N.E. by E., and Rota Island, S. ½ W., showing our Chronometer correct.

On the 27th January were in 26° 5′ N. Lat. and 124° 34′ E. Long. by observations, and Raleigh Rock bore eight miles distant. Now the Admiralty's chart of 1862 gives the position of Raleigh Rock, in 25° 58′ N. and 124° 8′ E. The latitude is therefore correct only, the longitude twenty-six miles too westerly.

In the forenoon of the 30th January took cross-bearings with Matson's Landpeak and Trio Rock, and found our chronometer right. Accordingly the position of Raleigh Rock is 25° 58′ N. Lat. and 124° 34′ E. Long. I remain, Sir, your most obedient Servant,

T. W. BENZIEN,

Master of North German Brig *Marie.*

*To the Editor of the Nautical Magazine.*

[The correct position of the Raleigh Rock as the Charts have shown has very long been doubtful. But our correspondent quotes one of these, that of "1862" and in 1870! Had he been using one of last year's, as he might be expected to have done, he would have seen all this rectified; and had he even referred to our own volume for 1864, p. 165, he would have found his own countryman, Captain Polack, assisting to set it right, and differing but three minutes of longitude from him. No ships should use an old chart of so dangerous a navigation as the China Sea, but should have on board one with the latest corrections made previous to her sailing—ED.]

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## PORT OF MAULMAIN, BAY OF BENGAL.

Port of Maulmain, January 27th, 1870.

SIR,—In forwarding the enclosed, I think it not out of place to remark, that the port of Maulmain (in cases of a vessel meeting with heavy weather in the Bay of Bengal, making water, or getting crippled, necessitating her seeking a Port of refuge to repair damage), has a first class patent slip for ships of heavy burden, connected with a capacious dry dock, charges are moderate.

Material (*i.e.*, teak, the native growth of this country, is abundant, cheap, and good), and good experienced mechanics are also numerous.

I am, Dear Sir, yours faithfully,

A. MCDOUGALL PECHE.

[By the paper above alluded to we have ascertained that the largest ship cleared out from the port of Maulmain was the *Timor Shah*, of 1406 tons, and draft of water twenty-two feet. She sailed from thence on the 22nd September, with a cargo of timber and rice for Bombay.—ED.]

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## ROYAL NATIONAL LIFE-BOAT INSTITUTION.

A MEETING of this institution was held on Thursday, April 7th, at its house, John-street, Adelphi, Thomas Chapman, Esq., F.R.S., vice-president, in the chair. There were also present—Lord Henry Cholmondeley, W. H. Harton, Esq., Captain G. H. Richards, R.N., Hydrographer to the Admiralty; Admiral Ryder, Captain G. H. Willes, R.N., C.B., Captain De St. Croix, and several other gentlemen.

The minutes of the previous meeting having been read, rewards amounting to £337 were granted to the crews of life-boats of the society for various services in the boats during the past month.

The Pakefield life-boat, *Sisters*, saved the crew, consisting of five persons of the brigantine *Adelia Ann*, of Swansea, which was totally

wrecked off the Suffolk coast during blowing weather. The life-boat *Old George Irlam*, of Liverpool, at Drogheda, Ireland, was happily the means of saving the whole of the crew, numbering sixteen men, from the barque *Richard Cobden*, of Liverpool, which, while on a voyage from that port to Monte Video, with a valuable cargo, went ashore on the Irish coast in a strong gale and heavy sea. The Cromer life-boat, *Benjamin Bond Cabbell*, took off the crew of five men from the wrecked brig *Emulous*, of Middlesborough; the sea was making a clean breach over the vessel when the rescue was effected, and she soon afterwards went to pieces. The Ramsgate life-boat, *Bradford*, and steam-tug *Aid*, and the Broadstairs life-boat, *Samuel Morrison Collins*, went out to the brig *Volunteer*, of Shoreham, which had gone on the Goodwin Sands; with their assistance the vessel was got off and taken into Ramsgate harbour. The Wexford large life-boat, the *St. Patrick*, rendered assistance to the stranded steamer *Danube*, of Leith. The *Albert Victor* life-boat at Berwick-on-Tweed saved, at considerable risk, in a very heavy sea, the crew of five men from the wrecked schooner *Margaret*, of Whithorn. The North Deal life-boat, *Van Kook*, brought ashore the crew of seven men of the brigantine *Germania*, of Bremen, which was totally wrecked on the Goodwin Sands.

Various rewards were likewise granted to the crews of different shoreboats for saving life from wrecks on our coasts.

Payments, amounting to about £1,600, were also ordered to be made on various life-boat establishments, and works to the amount of £957, in connection with different life-boats, were ordered to be carried out.

Her Majesty the Queen had sent her usual subscription of £50 to the institution. The employés of Messrs. Jones and Co., of Bristol, had generously forwarded £20 11s, 3d., being the proceeds of an entertainment they had given in aid of the life-boat fund being raised in that establishment. Messrs. Knowles and Foster had presented a further donation of £50 to the society; and Thomas Broadwood, Esq., had given it five debenture bonds of the Royal Victoria Yacht Club, bearing interest at five per cent. The late Miss Mary Walker, of Coates, N.B., had left it a legacy of £500, and the late Mr. Matthew Bell, of Glasgow, one of £200.

A new life-boat was about to be forwarded to Kingsgate, near Margate. New life-boat establishments were also decided to be formed at Seaham, county of Durham, and Chapel, on the coast of Lincolnshire, the local residents have promised their hearty co-operation, and there being plenty of resident boatmen to work the life-boat. Lady Bourchier had kindly promised to defray the cost of the Chapel boat, and that for Seaham would be provided by the Misses Carter, of Harrogate, who by their needlework and by means of bazaars held at their house had raised the entire cost of a life-boat and its equipment.

A report was read from Captain David Robertson, R.N., the assistant inspector of life-boats, on his recent visits to the coast, and the proceedings then terminated.

# Nautical Notices.

## Particulars of Lights Recently Established.

(Continued from page 211.)

| Name. | Place. | Position. | F. or R. | Ht. in Ft. | Dist seen Mls | [Remarks, etc. Bearings Magnetic.] |
|---|---|---|---|---|---|---|
| 32. Calais Buoy | ..... | ... ... ... | ... | ... | ... | See Notice No. 32b. |
| Brest Harbr. | Pt. Napoleon | Westn. jetty | F. | ... | ... | Red light changed to *Green*. |
| Lowestoft | Signals for | ... ... ... | ... | ... | ... | See Notice No. 32a. |
| Harbour | depth | Inisheer | ... | ... | ... | A horizontal white band to be |
| Arran Island | Ireland | lighthouse | | | | painted *Red*. |
| 33. Kattegat | Tylo Islet | 56° 38·8′ N. 12° 43′ E. | Fl. | ... | ... | To be erected. |
| Ulklippan | Tower heightened | and to show a | Fl. | ... | ... | Height not given. |
| Landsort Lt. | ,, | ,, | R. | ... | ... | And red flash every Two minutes. |
| Carlskrona | R. Dockyd. | East Point | F. | ... | ... | Natural colour } Kept in line lead |
| ,, | Vessel in roads | Masthead | F. | ... | ... | Red } mid channel into Carlskrona road. |
| Stockholm | Sandhamn | 59° 17·5′ N. 18° 52′ E. | F. | ... | ... | On the side of a house; and a Red one on a pillar near the shore to guide between outer shoals. |
| 34. Cardiff West Buoy | Moved westward | ... ... ... | ... | ... | ... | |
| Fleetwood | Temporary Light Ves. | moored in 4 fathoms | F. | ... | ... | N.W. by N. from old pile Lighthouse ¼ of mile. |
| 35. Panama Bay | Extremity of Wharf of | Railway | ... | ... | ... | Red. French Hospital red Light discontinued. |
| Papieté | Society Is. | Beacons and Lights | ... | ... | ... | Not to be depended on. |
| Fiji Group | SunkenRks. | ... ... ... | ... | ... | ... | See Notice No. 35a. |
| ,, | ,, | ... ... ... | ... | ... | ... | See Notice No. 35b. |
| 36. Richibucto River | Gulf of St. Lawrence | ... ... ... | ... | ... | ... | See Notice No. 36. |

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

No. 32*a*.—General Danger Signal at Entrance of Harbours.—The French Government has given notice, that the following danger signals have been established on the coasts in the event of the entrance of a harbour being obstructed by a stranded vessel or by any other accident, viz.:—

By day, a *red* flag will be hoisted on one of the jetties.

By night, a *red* light will be exhibited, and in those harbours where a light is established a second light will be exhibited, and both will show a *red* light.

No. 32*b*.—North Coast.—Alterations in Buoys off Calais.—Also, that the following alteration has been made in the Buoys Nos. 1 and 6, of the Riden of Calais, in consequence of their position being nearly in the track of the mail steamers:—

No. 1 buoy has been moved one mile westward of its former position.

No. 6 buoy has been moved 2½ miles to the N.E. of its former position.

No. 32*c*.—ENGLAND—EAST COAST.—ENTRANCE OF LOWESTOFT HARBOUR.—A *red* flag by day and a *red* light by night, when the depth of water is 10 feet and over. A *black* ball by day, and a *green* light by night, when the depth of water is less than 10 feet.

No. 35*a*.—FIJI GROUP.—SUNKEN PATCH OF ROCKS.—Information has been received through the United States Government that a rocky patch, with 2 fathoms water, lies in lat. 17° 50′ S., long. 179° 2′ 30″ West from Greenwich. Also, that the reef at the south-west end of Taviuni, extends west 4 miles. Also, that a rock exists in lat. 18° 32′ S., long. 179° 27′ 20″ W.

No 35*b*.—ROCKS IN VITI RAURAN BAY.—Notice is also given of the existence of two patches of coral rock, on which H.M.S. *Blanche* struck on the 6th and 7th December, 1869, in Viti Rauran bay, Viti Levu island.

1. A patch inside the Mololo passage with 2½ fathoms water on it, lies one mile south from Spieden island.
2. A patch in the centre of the bay with the following bearings, Liuthieum island north 6 miles, north point of Mololo Lailai W. by N. ¾ N. 5 miles, and Spieden island S.W. ¾ S. 7 miles.

*Note.*—In navigating the Fiji group great caution is necessary, as many unknown patches of rock may exist.

[*All bearings are Magnetic. Variation, Society islands* 8°, *Fiji group* 15° *Easterly in* 1870.]

No. 36.—RICHIBUCTO RIVER,—With reference to Notice to Mariners, No. 8, dated the 24th January, 1870, in which the depth of water on the bar of Richibucto river is stated to be 11 feet, the local pilotage authorities have more recently made public, that during the last season, vessels drawing from 14 to 15 feet water, and in a few cases more, passed over the bar in safety at spring tides.

The information given in Notice No. 8, was the depth at low water spring tides, to which level all soundings are reduced; and as the tidal range at springs is 4 feet, the depths on the bar at high water are thus confirmed.

The local pilotage authorities farther state in reference to the removal of beacons:—that the buoys and landmarks are always taken up at the close of navigation, to prevent their being injured by the ice, and again put down in their proper places early in the spring, before the arrival of any vessels, and that there is no necessity for the continuance of the North beacon, as the lighthouse on Richibucto head serves the same purpose, and with much greater certainty.

They also state that the bar channel instead of filling up is gradually becoming deeper, with every prospect of continuing to do so.

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## No. II.—PILOTAGE PAPERS FROM HYDROGRAPHIC NOTICES,

### No. 38.—BASS STRAIT.

From remarks on the navigation of a portion of the north coast of Bass Strait, by Navigating Lieutenant Henry J. Stanley, in charge of the Coast Survey of Victoria, Australia:—

(*All Bearings are Magnetic. Variation* 9° 20′ *Easterly in* 1869.)

*Cape Wollamai to Wilson Promontory.—The coast* from Griffith point (N. by E. ½ E., two miles from Cape Wollamai) trends E. ¼ S. 4½ miles to Black head, then south-easterly three miles to the River Powlett, and so on for five miles further to Coal point of the Victoria Coal Company, whose mimes are not working.

*Coal point* has sunken rocks off it as far as a mile to the southward; one dries at low water springs. The heavy break betrays the dangers of the point.

From Coal point the shore trends S.E. by E. ½ E. 2¼ miles to Cape Patterson. The whole coast S.E. of Black head is mostly a series of sand hills (100 to 144 feet high), the dwarfed tea tree occasionally appearing.

*Cape Patterson* is an ill-defined and low point; its highest part 127 feet above the sea continues to a range of hills above 900 feet high, to the east and north-east of River hill, eleven miles from the cape. A reef dries at low water to three cables S.E. from the point, and about four cables S. by E. from it has a depth of three fathoms.

Cape Patterson has no leading feature and is the least conspicuous point along the whole coast; but it may be known by a notable rock 59 feet high, about three miles eastward of it called the Eagle's Nest, half a cable off the shore coast at its turn towards Anderson inlet. Hereabouts the coast has a cliffy appearance.

From Cape Patterson the coast trends two miles E. by N. and then N.E. four miles to the mouth of Anderson inlet.

*Anderson inlet* receives two streams, Tarwin river and Screw creek, is not navigable except for flat-bottomed boats or barges, but some vessels are enabled to anchor there.

The bend of coast about Anderson inlet is known as Venus bay, having no good anchorage.

*Petril rock*, two feet above high water, is about half a mile from the shore, and midway between Eagle's Nest and the mouth of Anderson inlet.

*Tides.*—It is high water, full and change, in Venus bay at 11h. 56m. Tide ranges about seven feet.

*The coast* from Point Smythe, the east entrance point of Anderson inlet, trends south-east 13½ miles, slightly curving to Watercress creek, and presenting a series of sand hills 110 to 160 feet high, the last five miles of them almost without verdure.

Watercress creek (named from that plant) is under the table land of Cape Liptrap. Three-quarters of a mile north-west of the mouth of that creek, is a small rock of 15 feet dry above high water, and from thence to four cables seaward, are several sunken rocks. The coast here is composed of low sandstone cliffs, and thence S. by E. ½ E. one mile from Watercress creek is a very rugged coast, and point of overhanging sandstone, with jagged rocks strewn along it.

At two cables off the northern portion of this rugged coast is the Arch rock, 82 feet high, with a natural arch on its eastern side, and a rock awash at half-tide one cable W.S.W. of it. The coast continues the same for a mile beyond the Arch rock S.E. by S. with numerous pinnacle rocks along the same, with outlying sunken half-tide rocks at half a mile from the shore. About here craw-fish abound.

From thence the coast trends S.S.E. three miles to an islet, 63 feet high, off the west part of Cape Liptrap. Half of it being sandy and straight,

but with outlying sunken rocks at three cables from it. Between the islet and the cape are three small bays.

*Cape Liptrap*, 297 feet high, is the S.W. extreme promontory of table land 550 feet high, joining the Hoddle range of hills, which are 968 feet above the sea: at 16 miles N.E. by N. from the Cape, these again join the Fatigue mountain range, 2,000 feet high.

Several outlying rocks, from five to thirty feet high, fringe the shore of Cape Liptrap, at not more than one and a half cables from it.

*Grinder point.*—From Cape Liptrap to Grinder point, two miles N.E. by E. ½ E. with a bend between them, the shore is fringed with sunken rocks, in some places to three cables from it, but beyond this in bad weather the sea breaks heavily.

From Grinder point the shore trends N.E. for two and a quarter miles to Bell point without change, excepting that the land is somewhat lower, and several rocks from ten to thirty feet high at short distances from it.

*Bell point* is distinguished by a large broad rock about forty feet high, about a cable from it. From this port for two miles the shore turns abruptly to N.N.W. forming Waratah bay. At three cables from Bell point is a small islet sixty feet high, and about a mile from it are the three Bird rocks from forty to sixty feet high. These rocks enable a mariner to ascertain his position in the bay.

*Waratah bay.*—In S.W. gales vessels will find good holding ground here at above a mile from the shore, and should the wind chop round easterly, plenty of room for working out.

In the bay, at four miles from Bell point, the height of the land is only 100 feet, and the ordinary feature of sand hills generally, and the tea tree again prevails.

*Tides.*—It is high water in Waratah bay, full and change, at 12h. Tide ranges eight feet.

*Shallow inlet.*—From Waratah bay the coast trends E.S.E. to two miles from the entrance of Shallow inlet, when it becomes a low, bare, sandy shore, scarcely above high water. The east entrance point of this shallow inlet is much higher, and of bare sand. The entrance of the inlet could not be sounded on account of the heavy break. The depth varies with prevailing winds and freshes, being occasionally dry at low water, and at at other times with water for a large boat to enter.

From the mouth of this inlet the shore slightly curving trends S.E. ½ S. about six miles to the Black rock, thirty feet high, and a cable from the shore.

From four miles N.W. of Shallow inlet to about a mile from Black rock there is shoal water with a sandy bottom extending about half a mile from the shore, and off the inlet this shoal water reaches out nearly a mile. At about one and a half miles northward, and for two and a half miles southward of Black rock, the sandy bottom is interspersed with rocks, some drying at low water.

*Shellback island.*—About one and a half miles S.W. of Black rock is Shellback island, 357 feet high; the northernmost of the islands on the west coast of Wilson promontory.

*Tongue point* is 167 feet high, S. ½ E. two and a half miles from Black

rock, the coast between forming a bend, in the depths of which are some low red cliffs. Tongue point is a conical white rock, thirty feet high. The shore abreast of it is high, rising at four miles off to the Promontory range, about 2,000 feet above the level of the sea. Mount Vereker, 2,093 feet high, the N.W. mountain of the promontory, bears N.E. by E. six miles from Tongue point; and has a spur, 1,654 feet high, rushing out N.W. about two miles; this gradually falls in a westerly direction, and forms the N.W. termination of the high land of the promontory.

From Tongue point the coast trends S.E. ½ E., deeply bending to Leonard point, southward of which on the same bearing are Pillar and Norman points, the southern boundaries of Leonard and Norman bays.

*Norman island*, rather more than a mile south of Tongue point, may be known by two peaks, the highest and northern is 316 feet high. At a cable off this island on its eastern side are nine fathoms, affording convenient anchorage during S.W. winds. Coasting steamers of small power bound westward, having rounded the promontory, meeting a S.W. gale, could conveniently anchor here in preference to returning to an anchorage in Waterloo bay, east of the promontory.

*Oberon bay*, southward of Norman point, is the largest of the three on this coast, and affords the best anchorage. This bay is a mile deep, one and a half miles across, the sea breaking heavily on its broad sandy shore, where only landing can be effected in its S.E. corner. From the prevalence of S.W. winds none of these bays should be used as anchorages except by steam vessels.

It appears that easterly gales die away here at E. N.E., but a S.W. gale may spring up without notice, and then sailing vessels would find themselves on a lee shore with a swell setting them dead to leeward.

From the S.W. point of Oberon bay, the coast trends for about a mile S. by E., and then more easterly to a little bend, when it again trends S. by E. to S.W., being bold with cliffs several hundred feet high, again rising at the back to the mountain land of the promontory.

At rather more than a mile S.W. ¾ S. of S.W. point is Anser island, the largest of the group of this name.

*The Anser group* possibly owes its name to the geese frequenting its three islands; exclusive of three rocks about forty feet high between the two outer islands. Anser island the highest rises to a nipple point, 498 feet above the sea; has cliffs on all sides, but least so to the north, where landing is effected.

*Cleft island*, of this group, is nearly 1½ miles S.W. from Anser island, round in form, and may be known by a large slice out of its N.W. side, giving it a cavern-like appearance; it is also vertical and white on all sides.

Two small islets, about forty-five feet high, are midway between it and the next or middle island of this group. A third islet not quite so high at a cable off the N.W. point of the middle island is 312 feet high, and all abound with seals.

*Glennie group* consists of four islands about four miles W. ¼ S. to S.W. ¼ W. from Oberon point, the nearest land of Wilson promontory.

Glennie island, the largest of them is 455 feet high, nearly two miles long, N.W. by N. and S.E. by S., saddle-shaped, strewn with the granite blocks composing it, and giving it a castellated appearance. The sea generally breaks over a rock three feet dry, about two cables north off its northern

extreme, and over another larger, fifteen feet high, about a cable off its N.E. end of three smaller islands off the south point of Glennie island; the southernmost has been named Citadel island, from resembling a fortress. The water is deep between the Anser and Glennie groups, and between them and the shore. The whole coast being bold, and all dangers visible.

*Tides.*—It is high water at the Glennie islands, full and change, at 11h. 44m. Range of tide nine feet.

*The coast.*—From S.W. point the coast trends E. by S. ½ S. one and a half miles to a projecting low stony point, off which at a cable W.S.W. is a rock fifteen feet high, and two cables further is Wattle island, 270 feet high, which from being close seems joined to the shore. But between it and above the fifteen feet rock there is a deep channel with a constant stream through it. A rock awash is nearly a cable S.W. of the west point of Wattle island; excepting which the coast is bold.

Half a mile from S.W. point is the mouth of a fresh water creek, and at a short distance inland, eastward of it is a remarkable stone near the inner edge of the coast line, closely resembling a tower.

From the low, stony point, the coast trends E. by N. ½ N. to the Promontory lighthouse, two and a half miles, with two deep bends, the western receding above half a mile inland, and forming a natural basin to receive a running stream.

From S.W. point to the lighthouse on Wilson promontory the land rises suddenly from the water's edge to an elevation of nearly 1,000 feet.

*Wilson Promontory.*—The southernmost land of Australia is a lofty peninsula twenty-two miles long, north and south, and about eight miles across at its widest part. The low sandy neck ten miles long, and from three to five miles broad, connecting it with the main land, separates Waratah bay from Corner basin to the north-eastward.

This promontory rises to rugged mountains, some of which above 2,000 feet high are thickly wooded on their upper parts, but where exposed towards the shore they are nearly destitute of vegetation, as they descend abruptly to the sea. The shallow and generally barren soil with its brushwood, dwarf gum trees, and smaller vegetation covering the granite rocks, give it a deceitful appearance as seen at a distance.

*Light.*—The lighthouse standing on the S.E. part of Wilson promontory, E. by N. ½ N. two and a half miles from the south point, is a white circular stone tower, with its fixed light 383 feet above the level of the sea, and visible in clear weather twenty-four miles, between the bearings of N E. by E. ½ E. and S.S.W., unless concealed by the Anser group.

Vessels from the westward making the light may safely steer for it, as all the islands are bold.

*Landing.*—Unless the wind be fresh and due south, a landing may be effected on one or other side of the lighthouse point, with or without the aid of the crane intended for the landing of the stores. The first distinguishing pendant means that there is landing on the east side, the second distinguishing pendant that there is landing on the west side, and number 5 red flag that there is no landing.

*Forty Foot Rocks* (formerly ten foot rocks) are S. ½ E. four and a quarter miles from the lighthouse. Captain Kay, R N., landed on these rocks (a feat to be attempted hardly once in a year) and thus describes them:—

"Forty foot rocks consist of three separate and distinct islets of granite, of which the largest or westernmost was ascertained to be 165 feet long, and fifty feet across at the broadest part; this islet is twenty feet high at high water, and on its southernmost extreme there is a granite boulder, estimated to be twenty additional feet in height, and forty feet above high water mark, which, when the sea is breaking over these rocks, is probably the only part of them then visible."

By later observations the height was found correct, and the name of Forty foot rocks has been substituted for "Ten." These rocks are bold on all sides.

*Rodondo island*, S. ¾ W. six miles from the lighthouse on Wilson promontory, is a conspicuous conical mass of granite, three-quarters of a mile across, rising to a distinct peak at 1,150 feet above the sea, and visible in clear weather thirty miles from a ship's deck. The surface is covered with a dense dwarf scrub, and its high cliffs are bold on all sides. The forty foot rocks are N.N.E. ¾ E. two miles from Rodondo, and betwen them is a deep channel of thirty-eight fathoms.

*The tides* off Wilson promontory generally set E.N.E. and W.S.W., the flood stream coming from the eastward. The turn happens at nearly the time of high or low water by the shore, but its direction is much influenced by the winds. Near the Promontory, after an easterly gale, the ebb stream having been checked by it continues to run eastward after the flood should have made; and at the strength of the flood the stream will be found setting to the northward, except inshore, where the tidal streams follow the general law. In like manner a S.W. gale has an opposite effect.

The velocity of the tide off the Promontory (where it is strongest) has never been found to exceed two and a half knots. Along shore to a distance in the offing of seven or eight miles between the Promontory and Cape Wollamai, the tides are scarcely felt, but run with their greatest strength off the several points. During and after heavy easterly and westerly weather a current will be found setting in the direction of the wind which is blowing, or has just ceased to blow.

*Soundings.*—Off Wilson promontory the soundings are a poor guide, but to the N.W., either in the bight between the Promontory and Cape Liptrap, or off Cape Liptrap, a depth of thirty fathoms ensures a vessel's being three miles off shore. The same depth denotes the same distance from the land all along the coast as far as Cape Wollamai.

To the southward and S.W. of Cape Patterson the depths shoal much less suddenly than on any other part of this coast, and thirty fathoms or less will be found six miles off shore. From thence westward the thirty-fathom line again nears the coast until off Cape Wollamai, where it is only one and a half miles from it.

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## No. 39.—China—East Coast.

From the description of a dangerous sunken rock off Tongmi point, the eastern extreme of Hie-che-chin bay, by Francis L. Palmer, Navigating Sub-Lieutenant.

[*All Bearings are Magnetic.*]

*Suwonada Rock*, named from the steamer that struck on it, is nearly mid-channel between Tongmi point and the Tung-ki rocks, consisting of

two or three pinnacles, of eleven feet water at low water springs, having eight and nine fathoms close to. It is four and a half cables, N. by W. ¾ W., from the west extreme of the Tung-ki rocks; Tongmi point bearing N.W. by W. ½ W., and Si-Ki rock S.W. by W.

No indication of these rocks appeared by discoloured water. The passage between Tung-ki rocks and the mainland should be no longer frequented by vessels.

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## New Hebrides.

[*Variation* 9° 40′ *Easterly in* 1869.]

*Paama*, one of the southern islands of the New Hebrides, is about five miles N. and S. by one and a half broad; height from 1,700 to 1,900 feet.

The southern point is in about 16° 30′ S., 168° 10′ E., and three miles from Duana point, the north-west extreme of I. Api or Tasiko. The eastern side of Paama seems to be clear of danger, and bold.

Close off the south point are rocks, the largest of which is known as the Nine-pin; they are encircled by a reef extending about a quarter of a mile from the shore. This reef shelters a small bight with a rough stony beach west of south point; the slopes of the hills above this are cultivated. Half a mile west of the reef a discoloured patch was seen.

From S. point the coast trends to N.W. about one mile and a half, with rough beaches and reefs, then continuing north and south the length of the island with smooth water. About three-fourths of a mile N.W. of the S.W. point, and half a mile from the shore, is a patch about 200 yards in extent, with an occasional break; dangerous to approach from the southward with the sun ahead; from its outer edge the S.W. point and coast of Paama bears S.E. ¼ S., and the N.W. extreme of the island bearing N. by E., clears it to the eastward. Another shoal is nearer to the shore, about three quarters of a mile north of this patch, but there was no break on it.

No other outlying dangers were seen till near the N.W. extreme, when a little south of this point and close to the shore a small patch was observed, and a short spit runs off the northern point. The general character of the western shore consists of rough coral beaches, with much cultivation on the lower slopes of the north-west ranges. A village was seen about one mile and a half S. of the N.W. point, and the whole coast is evidently inhabited.

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## Polynesian Labourers for Queensland.

One of the effects of the system of transporting Kanakas to Queensland or the Fiji Islands shews itself in the shape of the slave trade in the South Seas. Mr. P. A. Taylor, of Aubrey House, Notting Hill, has communicated the following information to the *Daily News* of April 9, as an extract from a journal of a voyage among the New Hebrides Islands, in the Mission vessel *Dayspring*, just received from the Rev. Mr. M'Nair, the well-known missionary at Eromanga. The extract is from the journal of the Rev. Mr. Milne, and can, if need be,

be attested by the Rev. Dr. Geddie, senior member of the mission; as also by Captain William Fraser, of the *Dayspring*:—

Tongoa, Shepherd's Group,* was the next island we visited after leaving Santo. We arrived there on Sunday morning, the 31st October. The *Flirt*, a brigantine belonging to one M'Kenzie, of Auckland, was anchored there. The object of her visit to the New Hebrides was to get labourers for Fiji. She had on board some twenty natives of Three Hills Island, and three natives of Tongoa. A Tongoa man (a chief) who came on board of the *Dayspring* told us that, a little before our arrival, he went to the *Flirt* in his canoe to try to get his countrymen off, and that as one of them was attempting to get into the canoe a white man on board of the *Flirt* presented a musket, and said that if he took that man away he would shoot him. Soon after this Captain Fraser, of the *Dayspring*, went on board of the *Flirt* to see the captain, who told him that he was not kidnapping natives, and that he was not going to take the Three Hills and Tongoa men that he had on board to Fiji, but that he was merely taking them, at their own request, to the neighbouring island Epi to see their friends, and would return them again to their own islands three days after. Their passage to Epi and back, we were told, they paid with pigs. That afternoon the *Flirt* weighed anchor, and went in the direction of Epi.

Havannah Harbour, Fate, Nov. 3rd to 10th.—Here we heard that the *Flirt* did not restore the Three Hills and Tongoa men to their own islands at the end of three days, as agreed, but took them, pigs and all, to Fiji. A Fate man, who escaped from the *Flirt* at Man, a small island on the north coast of Fate, where the *Flirt* called on her way to Fiji, brought us this word; and so also did a Fate lad, whom the *Flirt's* agent in the kidnapping business, one Jimmy Shangoon, a native of Wea, one of the Loyalty Islands, had taken ashore with him on his leaving the *Flirt* at Fate. This Jimmy has been before engaged in this way, and is affirmed to have committed several murders while so engaged—attacking canoes, cutting down those that resisted, and carrying off the rest. He is at present residing at Havannah Harbour. While we were detained there word was also brought us that the chief of the other side of Tongoa is greatly enraged just now at white men, owing to Captain M'Leod, of the schooner *Donald M'Lean*, having taken away two of his wives, and a number of his people, to Port-au-France, New Caledonia; that he is waiting for an opportunity to take vengeance, and that he intended to come on board of the *Dayspring*, on the day that we left, with a number of his men, as if in a friendly way, and then suddenly fall on us, and kill all the white

* The names of islands mentioned here seem to be both arbitrary and modern. For instance, we have never heard of the Shepherd's Group, but consider Tongoa to be one of the Friendly Islands. Three Hills is another new name for an island; nor are we yet acquainted with Epi, but consider it as one of the above group. Another island, mentioned as "Man," may be "Main." In fact, what with new names and misprinting, the nomenclature of our charts, unless looked closely to, is not unlikely to suffer sad outrages, as well as their native inhabitants.

people on board. We left, however, at daybreak, and thus providentially escaped them.—PETER MILNE, Missionary, Eromanga, New Hebrides.

*Deportation of South Sea Natives.*—In reply to Mr. Kinnaird, Mr. Childers said that the Under Secretary for the Colonies would lay upon the table before long additional papers with reference to the deportation of natives in the South Seas. Commodore Lambert had been directed to use the utmost vigilance in checking the slave trade character of the operations in the South Sea Islands, and on the 22nd February was instructed to send a vessel to the Fiji and Friendly Islands, for the purpose of preventing the traffic in slaves. As to the case of the *Daphne*, the Secretary of State had approved of Commander Palmer's proceedings, and yesterday he (Mr. Childers) promoted that officer to the rank of captain, expressly to mark his sense of his conduct in the matter, and it was their intention to ask the Treasury that the expenses which Commander Palmer had had to pay should be refunded.

In our last number will be found Mr. Taylor's interesting account of this kind of slave trade, to the House of Commons. Verily, it is quite time our ships of war were superintending these matters for our own colony, or we shall soon have a repetition of such proceedings as the murder of Captain Blackett and his crew (related in our last), of the barque *Moaroa*.

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## REVIEW OF SOME NAUTICAL TOPICS OF THE DAY.

As might be expected an attempt seems to have been already made to impose a useless hoax upon us by some busy body with an alleged relic of the *City of Boston*. But here is the statement from which our readers may judge for themselves:

*The Supposed Relic of the City of Boston.*—On Saturday Evening there was washed ashore at Perranporth a broken piece of teakwood, about three feet long, and about three or four inches wide. On one side it was painted blue, and on the other side was rudely inscribed, apparently with a knife or chisel, with the following in Roman capitals:

TY OF BOSTON IS SINKING FEB II
M

The date is variously read by persons who have seen it; some considering that the two strokes after "Feb." represent the Roman notation of two; whilst other persons hold that they are Arabic numerals for eleven. Of the word "City" all has been broken away except the lower part of the letter T and the Y. Beneath the date is what looks like a rudely formed capital M, which is supposed may be the initial of the writer's name. The board is much battered, and saturated. It appears to have been in the water a considerable time, and it is believed to be genuine sea-waif. It remains in the possession

of Mr. Hickey, of the coastguard, at Perranporth.—*Western Morning News.*

Now the distance which this piece of teakwood must have drifted to reach our shores is about 2300 miles, and the interval for it to do it in is about seventy-one days, thus requiring a progress of above thirty miles per day for all that time. We have recorded a large number of these ocean messengers, but have not found one that has moved at this rate for seventy-one days consecutively, or gone more than twelve miles per day. It is not easy to perceive what motive there could be in such a fabrication, but for our own part we believe it to be a heartless hoax, and it is not the first of its kind. However, the vessel is considered as lost, as it was stated some days ago that the claims upon the Underwriters at Lloyd's, and at the various insurance offices are about to be settled.

MANY of our readers no doubt by this time have been somewhat surprised at having seen a solitary craft at anchor, apparently at sea as they have run past her on their way into or out of the Channel. In our February number we alluded to a vessel being placed at anchor in deep water about the middle of its western entrance, and by the annexed this intention seems to have been carried into effect.

*A Telegraph Ship in the Channel.*—Her Majesty's ship *Brisk*, granted by the Admiralty to the International Mid-Channel Telegraph Company, has been successfully moored at the entrance of the English Channel by Rear-Admiral Hall, C.B. Her bearings lie:—Bishop Rock lighthouse, N. by E., distant 33 miles; Wolf Rock, N.E. ½ E., distant 40 miles; Land's End, N.E. ½ E., distant 49 miles; Lizard, E. by N. ½ N., distant 56 miles; and Ushant, S. by E., ⅝ E., distant 70 miles. The vessel is painted black, with the words "Telegraph Ship" in white letters on her sides. She has three masts, and at the top of the mainmast a large black cone will be hoisted during daytime, and a powerful globular light at night, elevated 30 feet above the sea, which in clear weather should be seen from a distance of six miles. A flare-up light will also be shown every fifteen minutes during the night, from an hour after sunset to an hour before sunrise. During foggy weather, day or night, a bell will be rung continuously for half a minute every quarter of an hour: and for the first six months, or until the 1st day of October, 1870, a gun will be fired every quarter of an hour, and after the date every hour. The Commercial Code of Signals for the Use of all Nations will be used on board, to the exclusion of all other codes, and none other can be noticed. The telegraph ship has on board a stock of first-class provisions, and also a limited supply of coal, for vessels in immediate need. A steam tug is attached as a tender, having her head-quarters at Penzance, and ready at very short notice to attend to orders by telegraph from the vessel. During the prevalence of light winds she will be usually with the ship, ready to render such services as may be requisite, such as landing passengers, towage, receiving messages from passengers for conveyance to and transmission from the telegraph ship. In cases of

any salvage rights accruing to the company by assistance rendered to vessels in distress or otherwise, it has been determined, in order to avoid the delay of litigation, to refer the amount of such claim in all cases to the decision of the Committee of Lloyd's Salvage Association.

The great benefit of such a stationary vessel which the powers of the Electric Telegraph will confer, we have no doubt will soon make themselves evident.

A USEFUL collection of sketches of the principal headlands, islands, rocks, etc., between Hong Kong, Shanghai, and Yokohama, has been made by Commander W. B. Andrews, of the Peninsular and Oriental Company's Service, that cannot fail to afford valuable assistance to the commanders of ships employed in that arduous navigation. They are done in a rough and ready style of lithography, and by their outlines are quite sufficient to apprize the navigator of his locality, by a comparison of them with the headlands themselves when he sees them before him. They apprize the navigator of what he is to look for, and cannot fail to be of much service to him.

ARE we to have a tunnel or a steamer-bridge to keep up our communication across the Strait of Dover. The case stands thus. We read in the Daily papers that the public will be glad to learn that the question of improving the passage between England and the Continent is, by some steps at least, nearer a solution, the French Government having nominated a Committee to investigate the feasibility of constructing a new port at Andresselles, which lies between Calais and Boulogne. We have had all manner of schemes for bridging over in some satisfactory manner the ridiculously narrow riband of salt water which separates England from the Continent. Most of these schemes it is pretty clear failed from being too ambitious, and there can be little doubt that for the present all we can hope for is larger steamers and better harbours. But we certainly cannot have the larger steamers till we have more commodious harbours on the French coast at least, and we quite agree with the conclusion recently come to by the Society of Arts, that it is useless to attempt to effect any improvement in the Channel vessels while they are limited to the present tonnage and draught. The real question, therefore, is that of the harbours, and we hope that the French Government having now, as it appears, taken the subject into serious consideration, will not stay its hands until the task is accomplished, whether by making a harbour at Andresselles, or any other new point, or, as we cannot help thinking might be a simpler solution of the question, by enlarging one of the existing harbours of Calais or Boulogne.

And in favour of the former we also read,—Mr. Bateman has delivered an interesting address at the Royal Institution, in which he explained the scheme of himself and his colleague, Mr. Revy, for a submarine railway between Dover and Cape Grisnez, to be worked by atmospheric pressure. A gigantic iron tube is to be driven along the bed of the Channel, the constructors working in a closed chamber,

which they push along with themselves as the work proceeds. The joints will, we are glad to learn, be water-tight. The huge floating tunnel will be secured against the tides and currents by strong piles, and will be strongly moored to the bottom of the sea. Certainly, the scheme seems a little wild. But, as Mr. Bateman well remarked, it is not yet half a century since a locomotive of any sort was thought to be an impossibility. And it is quite conceivable that the difficulties to be encountered in the bed of the Channel may, after all, be as imaginary as was the famous "cow" difficulty which Stephenson met so promptly. In any case, however, the project deserves attention, and we heartily wish it well. Whether the Channel is to be tunnelled by Mr. Bateman, or whether we are to have the great ferry-boat of Mr. Fowler which is to carry trains and their contents bodily across, railway communication with France will be a boon, the value of which cannot be sufficiently estimated. It will not only greatly benefit the general public, but it will also tend in the long run to render the interests of two great nations identical, to promote the growth of free trade, and to make war a yet more remote contingency than it is at present.

*The Passage of the Bosphorus and Dardanelles.*—The International Commission appointed to consider the new police, fiscal, and sanitary regulations expedient to be made for facilitating the passage of merchant vessels from the Black Sea into the Bosphorus, and from the Straits of the Dardanelles into the Mediterranean, have already held several sittings, and the different details have been deliberated upon by sub-committees. The basis of the inquiry is the conservation of all the political and fiscal rights which the Turkish Government has hitherto exercised under treaty. There is every reason to believe that before very long the Porte will be able, on the recommendations of the commission, to carry out the intention it has already formally announced to the foreign legations of throwing open the passage outwards through both Straits to all merchant ships, and it is even probable that vessels bound from the Black Sea to the Mediterranean, and *vice versa*, will be allowed to pass right through the Bosphorus and the Dardanelles without stopping—a privilege which would certainly be a great boon to the shipping trade, especially in its depressed state, by saving owners not only many charges but also time, which is equivalent to money. It is estimated, in fact, that the saving of the delay occasioned by the present restrictions would amount to an extra voyage in the year.

*New Occupants of Greenwich Hospital.*—The removal of the patients from the *Dreadnought* to the Infirmary of Greenwich Hospital was safely and successfully accomplished on Thursday, at high water. Most of the sick now in hospital were able to accomplish the change of residence without much assistance, and every facility was afforded by the Admiralty authorities. The Infirmary of Greenwich Hospital is calculated to accommodate about 300 patients, and the Seamen's Hospital Society take charge of eighteen aged and decayed pensioners, who were located in the building when it was handed over to the *Dreadnought* authorities.

*Sufferings of a Ship's Crew.*—Captain Hayward, late of the ship *Mary*, gives the following account of the foundering of that vessel:—"On the 30th November I sailed from Callao for Cork for orders, with a cargo of guano, the ship being in good order and well found for the voyage. All went well until December 11, when, blowing heavy, with high cross seas, she sprang a leak, and, in spite of all exertions on the part of the officers and crew, the water increased rapidly until about 5 p.m. on the 12th. The water was then 14½ft. high in the hold, and the vessel unmanageable. All hopes of saving the vessel and cargo were given up, and as it was dangerous to remain longer by the ship, we abandoned her at 5 p m., the second officer and six men taking the life-boat, and the mate, with the remainder of the crew and myself, taking the launch. We lay by the ship during the night, and shortly after daylight on the 13th the vessel went down head first. We had then parted company with the life-boat. Since then I have made the best of my way to the mainland, and on the 28th I fell in with the *Iona*, of Glasgow, from the Guanape Islands, to which I transferred eight of the men who were unable to proceed further in the boat, owing to exposure, exhaustion, and sickness, brought on by drinking salt water. We were sixteen days in an open boat, and on daily allowance of only half a teacupful of water. I left the ship the same afternoon, taking with me the mate and one man, and arrived at Payta on the 31st December."

*Shipwreck and Loss of all on Board.*—The ship *Crest of the Wave*, Captain Jones, which sailed from Liverpool on the 8th of March, for Baltimore, with a full cargo of railway iron, was apparently making a rapid and successful voyage up to the day previous to the disaster. On the 9th inst., the ship being then off the American coast, a heavy gale sprang up. On the following day (Sunday) the storm continued, and it is believed that the ship became disabled, and was driven ashore on Hogg's Island, and became a complete wreck, every soul on board perishing. A telegram from Fortress Munroe, dated April 15th, from Captain M'Carrick, of the steamer *N.P. Banks*, states that the bodies of the unfortunate crew had been washed ashore on Cobb's Island. The *Crest of the Wave* was built at Warren, Maine, in 1854, and was owned in Baltimore by Messrs. A. L. Jones and Co. She was a fine ship of 942 tons register.

*Practical Hints on the management of the Compass in iron and composition ships.* A zealous individual at South Shields in the cause of the safety of our Merchant Shipping, has compiled this little brochure for a large class of masters and officers of coasting vessels and steamers, who it is supposed cannot devote much time to study, and from whom he considers the Admiralty Manual to be practically excluded. Certainly the Manual may have a forbidding bulky appearance, and a shorter and cheaper road may be found to provide an acquaintance with important facts and how they are to be dealt with, may be preferable to fishing them out of the above volume. It is published by Ainsley at the Market Place, South Shields, and seems likely to achieve the object with which it has been undertaken.

THE

# NAUTICAL MAGAZINE

AND

# NAVAL CHRONICLE.

JUNE, 1870.

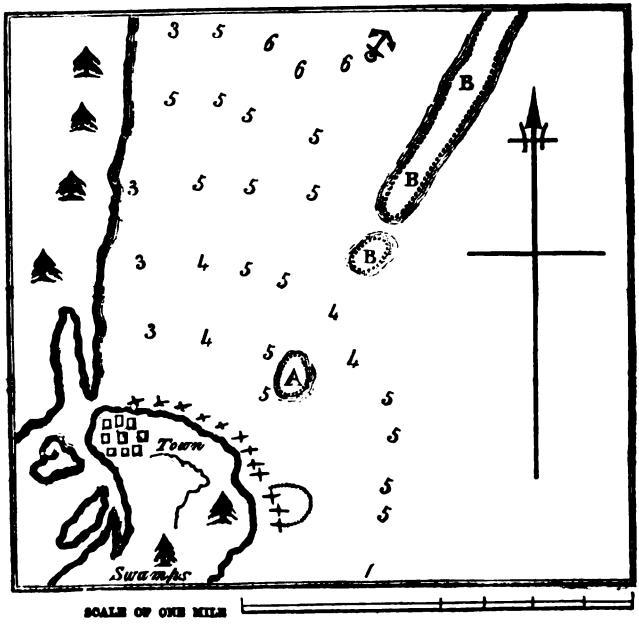
## Manooroo Anchorage and Reefs. Madagascar—Eastern Coast.

Mr. Editor,—Knowing that you always like to hear of anything that is for the good of seafaring people, induces me to send you a plan of one of the anchorages on the east coast of Madagascar. Being in Mauritius lately, and a charter offering for three places on the east coast of Madagascar, I looked up all my charts and directions for that part of the world, but could not get the information I wanted. I next turned to the *Nautical* but succeeded no better there. I then made it my business to go and hunt up some of the captains of the vessels that carry bullocks, to see what I could learn from them. I met one who had just come from Manooroo, and he told me that he had experienced the same difficulty in getting a chart, when he went there. The Admiralty charts just gave the outlines of the places. So he had got a copy of a small plan from a French captain who had been there, and I having the loan of it take the liberty of sending a copy of it to you, with what information I could get from him at the same time.

It is not advisable to run down on the land if the S.E. wind is strong; as this same land is low, and there is a strong current setting to the southward along the coast. Should you fall a little to the southward of the place you will have a great deal of trouble to get back again, and the lead is the only guide. Bring the end of the reef which you require to pass as close as possible, and in anchoring you should keep a little nearer the reef than the shore. The anchor on the plan is nearly where he was anchored, and he told me that he rode out two strong breezes there. The N.E. wind is to be guarded against, and a vessel should be ready at all times to slip. But here is the information that was on the chart. "The north end of the reef is in

lat. 19° 53′ S, long. 48° 50′ E. (Query, Paris). Manooroo is the only good anchorage along this coast, although other places seem to have good holding ground but they are filled with dangerous rocks. Manooroo outlet is rather contracted, and the currents of the river run strong, shifting the bottom and causing the anchors to drag.

MADAGASCAR ANCHORAGE AND REEFS OF MANOOROO.




"There is generally a strong sea on the reef A. The sea breaks on it continually. The reef B appears to be disconnected from it, and the sea does not at all times break so that a ship must be careful in approaching it." Such are the particulars of the chart, of which the above is a copy. The cargoes are brought off in small boats, of which there are nine at present. They soon load a ship up unless there should be four or five ships in at a time, when the boats are divided amongst them. The rice comes off in small handy bags, purposely for taking in quickly. Who knows but in a short time there may be a good trade from Madagascar to Europe. At present they only send their produce to Mauritius, Bourbon, and a small portion to the Cape.

The names of the other two places were Mahela and Mananzari. They are both open roadsteads, and ships can only lay there during fine weather. Ships bound to the three places should call at Manooroo first, as the current will always assist them along the coast to the

others even should the wind be foul. But the wind is generally off the land at night, so that there will be no difficulty of shifting ports at night, and about the middle of October the N.E. winds set in; so that it would not be advisable for any one to charter so as to be there after that time, as they might be a month or six weeks before they could get loaded, and might have to leave the coast with half a cargo.

Now, Mr. Editor, if you should think any part of this worthy of a place in the *Nautical*, I shall be glad to see it in some of your future numbers, and I may take some note books of mine away on another voyage, and be able to gather something out of them that may be new to the pages of the *Nautical*. I shall try to get all the information I can so that I may be able to contribute my mite to it, it will assist to pass the lonely hours at sea. I have always been deterred from writing on account of being so long away from home, and the news in the *Nautical* is generally old to others when it is new to me.

I remain, yours, most respectfully,

WM. HALL,

Master of the barque *Glenisle*, of Leith.

*To the Editor of the Nautical Magazine.*

The place alluded to by our correspondent named *Manooroo*, seems to be no obscure town, about a hundred miles south of Tamatave on the eastern coast of Madagascar, and is conspicuously noted in Arrowsmith's map. But our search for it in the Admiralty chart supplies us with no further intelligence of it in the shape of hydrography, either in the way of plan or directions. Our correspondent has therefore conferred a benefit on seamen by his information, for we know of no other to be had.

While on the subject of Madagascar, we may take the opportunity of alluding to a remarkable circumstance which we find recorded in a Sydney paper,* but have not met with it in the English prints that have fallen under our observation. Knowing the great success which has crowned the exertions of our missionaries in that island, and the liberal feeling of the Government, while the circumstance in question did not occasion much surprise, it was with the highest satisfaction that we found it, and here preserve it. We by no means suppose that it may not be generally known; but not having seen it in an English print induces us to believe that it is not so commonly known as it should be. The statement is thus related.

*Destruction of Idols at Madagascar.*—The following, from the correspondent of the *Port Louis Gazette*, dated Tamatave, Sept. 22nd, is interesting, as showing the progress of Christianity at Madagascar:—"A Hova chief called at my office to-day and wrote down the names of the five principal idols burned at the capital, namely—Kelimalazo, Imahavalay, Ifantaka, Tsimahalahy and Rabehaza. The first-mentioned of these idols is represented as having been merely a piece of stick wrapped up in a piece of red cloth or leather. The burning of the

* *Sydney Morning Herald* of 7th December, 1869.

idols of course is a strong proof of the progress made by the missionaries at the capital." A day or two later he again writes:—"A list of six more of the destroyed idols has been handed in to me, and consequently as they are now no more, they are things of the past, and belong to Malagash history, so I give their names as follows, in hopes that they may be interesting to students of Malagash history and nomenclature. Here are the names: Manjaibola, Vatamena, Faroratra, Tsimandafikia, Vololona, and Andriamaitso. Most of the idols had the Malagash prefix 'R A' attached to their names as a mark of their nobility or respectability."

The long list of idols destroyed given in the extract, does not appear to include another mentioned by the Rev. W. Ellis, in his interesting work entitled "Madagascar Revisited," published by Murray in 1867. This is the serpent idol of the part of the island which we believe lies in the direction of Tamatave, from the capital Antananarivo—a very good plan of the environs of which appears in Mr. Ellis's work.

Mr. Ellis with a number of the people of Madagascar goes to see a house at Ambohimanjaka, where nine Christians were confined in fetters during the last persecution, and he says:

"In going and returning we passed along the foot of a barren granite mountain, among the large blocks at the summit of which is a small house, sacred to Ramahavaly, the serpent idol. To this place the idol is taken once at least every year, to be anointed with fat! and when the votaries of the idol find any snakes, they are taken there alive, as to their home. This rocky summit is a barren, dreary place, said to abound with snakes, some of them of a very large size.

Much as Madagascar has suffered from the ravages of idolatry, and much as the missionaries have been permitted to do in suppressing it, there are no doubt many more idols, which like this for the serpent, have yet to be destroyed. However, when the people themselves have been so extensively converted as those of Madagascar are, and become imbued with proper feelings against this primitive and abhorred custom, the time cannot be far distant when the island will be free from the taint of idol worship.

We must not fail to observe here how useful are these little and even trifling contributions of our Mercantile Commanders, to many of which we could point in these pages; apparently of little importance, of quite a secondary nature. And yet this, small as it is, stands alone, as the first hydrographic information to be had of Manooroo, a place of some importance southward of Tamatave on the eastern coast of Madagascar. This coast was run along by Captain W. F. W. Owen; but no survey was made of it, and the plan of our correspondent stands alone to enable a ship to go and load there as he did. It is thus that navigation is promoted, and it is by such contributions that our Mercantile Commanders are most laudably helping each other.—Ed.

## Notes of a Voyage from England to Calcutta and Return.

I left London in July, 1867, in command of a ship of about 1,200 tons, bound to Calcutta with 1,600 tons of coal on board. The ship had six ventilators, each one foot square and from sixteen to eighteen feet long, extending down the three hatchways. She also had the same bell-mouthed air shafts as when fitted for coolies on a previous voyage. The upper deck hatches, skylights, etc., were never closed, but kept open day and night, tarpaulins were spread over all the hatchways tent fashion in wet weather to keep out rain.

We had a fine weather passage, and progressed pleasantly to the southward! For several years I had followed the advice of Maury, to his American Captains, and had crossed the equator to the westward of 29° W. I had always passed Cape St. Augustine without any trouble, but was always forced to go a long way south before I could make easting, once as far as 45° S., in 34° W., and in nine voyages, I found that I was over thirty days each voyage from the Equator to 20° E. I had frequently made the same passage in twenty-seven days when crossing the equator in 22° W., I therefore determined to try the eastern route after passing St. Antonio. I stood to the S. E. by E. with the first southerly wind, kept my reach and the ship came up, passed Cape Palinas about eighty miles distant, and tacked in 3° N. crossing the equator in 13° W. (the previous year on the same day of the year I crossed it in 13½° W.) on the twenty-ninth day out, and passed 20° E. in twenty-eight days.

From the time of my leaving London to my arrival off the Cape of Good Hope, I had no cause to suspect that the coals in the hold had been heating. The hatches as before observed were never closed. Yet on the 21st September smoke was seen coming up the main hatch ventilators, and a slight smell of gas was perceptible. After examining the hold fore and aft, my officers and myself came to the conclusion that the smell did not proceed from smoke but from steam.

In about an hour after daylight the smoke ceased to come up the ventilators. On the 27th of September, six days after the above occurrence we had a strong gale of wind, and were forced to batten down the hatches. Through the night a very strong smell of gas came up from below, especially into the cabin, and at daylight black smoke came up all the ventilators. We lowered thermometers down the ventilators, but found very little increase in the temperature. However, it was now evident to every one that the coals were on fire.

The hatches were therefore battened down, and sail made on the ship in hopes that we might reach the Mauritius before further mischief occured.* The ship blazed up at two a.m. on the following morning, and was burnt to the water's edge by eight p.m. of the 30th.

* A detailed statement of what was done, and of the burning of the ship that followed, and the rescue of the crew, was related in a letter to the *Calcutta Englishman* of 13th November, 1867.

The crew were picked up by the *Childwell Abbey*, of Liverpool, and landed at Calcutta on the 13th November, 1867.

In Stevens on "Stowage," under the article "Spontaneous Combustion," pages 139 to 142, the author speaks of extinguishing the fire on board of a coal ship, as a very easy matter: in fact that you have nothing else to do, but to close your hatches, scuttles, etc., keep out all fresh air, and the fire will go out itself. Now this is stated so confidently that I believed it, and acted on the advice, and in fourteen hours from the time we battened down, the ship was in a blaze. It is therefore evident that Stevens is not correctly informed on his subject.

Moreover I am much puzzled about two or three things in the burning of that ship. About ten or eleven p.m. of the 29th, we appeared to have got the upper hand of the fire, in fact to put it out. I was down in the lower hold myself and it was perfectly cool, and in the after hold there was a strong smell of gas, but no appearance of fire. The coals in between decks appeared almost afloat, there was about a foot of water in them abreast of the after hatchway. But shortly after midnight dense black smoke again came up the after and main hatchways, and frequent explosions took place below. It soon became apparent after this, that the fire had too great hold to be put out, and that our stay in the ship was merely a question of hours!

When the ship burst into flames, they first shewed themselves just above the water-line, *the sides* were burnt through first, and the fire ran up the masts from them. After the flames burst forth the ship burnt most rapidly. It was not more than an hour and a half from the time the flames burst out, till she exploded and we lost sight of her.

On the 25th of September we exchanged numbers with the barque *Sanderson*, sixty days from Sunderland, bound to Aden. We kept company in sailing with this barque very well, she had peculiar cut jibs, and had a small piece of new bulwark let into her port-bow, she was in sight ahead at sunset on the 26th, and on the 27th and 28th a vessel was in sight about the same position from us. It fell calm after the ship blew up on the morning of the 29th, and at daylight a barque was in sight about five miles to E.S.E. of us. I lowered down a boat and sent my second officer to inform her captain of her position, I at the same time had the royals clewed up, and a new nine-yard ensign hoisted at the main-royal mast head union down, also a new house flag hoisted at the fore. The boat approached within two miles of the barque. The second mate could see her water-line, and also the piece of new unpainted deal on her port-bow, and is quite sure that the barque was the same vessel as that which showed the *Sanderson's* number. I was within five miles of her and am of the same opinion.

When the boat was about two miles from the barque, a breeze sprung up from the E.N.E., our ensign union down blew out clear from us as the black smoke hurried away from our hatches as it would from a steamer, and the boat held up a large handkerchief fast to the boat hook. As soon as the barque made out our signals of distress,

she instantly wore ship and made all possible sail to the S.E., going away from us with a flowing sheet. I myself could see the men on the barque's forecastle hauling over the jib sheet. *The above act of inhumanity was perpetrated by a British shipmaster on the 29th of September*, 1867, and if the barque was not the *Sanderson*, perhaps her master or owner would give her latitude and longitude for the 27th, 28th, and 29th September.*

We were treated very kindly by the captain and officers of the ship that picked us up, and were carried on to Calcutta. The Marine authorities there were very kind to us, and helped us all into berths as soon as they could, and I myself obtained the command of one of the steam transports bound to Abyssinia.

I have thought much over the burning of that ship, and of what should be done to prevent so terrible a calamity among the numerous coal ships that now carry cargoes to the eastward of the Cape of Good Hope. The great number of coal ships that are now burnt really demands imperatively that the Board of Trade, or whatever department of Government it may concern, should collect the best information they can obtain, and insist on all shipowners adopting preventative measures in coal laden ships most likely to protect them from taking fire; whether those measures consist in a scientific system of ventilators, or in taking in the coals dry they should be attended to. I have twice had a thousand tons of coal on board of a ship for six months, and no apparent heating of them took place, although most of the time was passed within the tropics.

On the first occasion I stowed a line of stone ballast and large pieces of coal along the kelson, say about eighteen inches high and the same broad, and put a ventilator about ten inches square at either end of the ship. Then about five feet below the hold beams two horizontal ventilators were run fore and aft one on either side. They were made of rough three-inch deal with one saw cut down the middle, making one and a half plank. Three pieces nailed together, with the bottom part secured with a few cross pieces was all I used. Those fore and aft ventilators were pierced at all the hatchways with upright ones of a foot square, and bored full of auger holes at all the hatchways. The expense of the wood was about six pounds ten shillings. In my next coal ship I had an iron steamer in pieces stowed among the coals, so that there was a thorough draft fore and aft. In both cases the coal was put on board perfectly dry. I am of opinion that the screw colliers in London should be *compelled by law*, to discharge their cargoes *into all coal ships loading for ports east of the Cape of Good Hope*, and not into lighters or open coal barges to be transshipped as the custom now is; and further that in heavy rain they should be forced to stop and keep the hatches covered. This should be done notwithstanding the opposition of the screw collier owners who care nothing for the lives of the unfortunate crews of coal ships; but as an act of common humanity and protection to said crews!

* On the 27th we were in lat. 39° 25' S., 30° 39' E.

It is my opinion from experience that coals should always be shipped for a long voyage *dry*. Secondly, that some system of fore and aft ventilation connected with ventilators down through the deck or hatchways should be adopted; and thirdly, that a space should be left below the hold beams, clear all around each hatchway to allow gas to escape, and also to allow room for men to get into to direct the hose in the event of fire! If I am ever so unfortunate as to be in a coal ship on fire again, as soon as I find out the vessel on fire, I shall open the hatches and endeavour to get as much water into her as she will float with, and then throw coals overboard and endeavour to get at the seat of the fire. In my last case the decks and hatches were blown to pieces, so that I could not adopt that course even if I had had time. I need only add that fire at sea is a calamity of so terrible a nature, and so appalling to the strongest nerves, and so little can generally be done to extinguish it when it has once got its hold of the cargo, that any suggestion that can be devised as a preventative by science or common sense should be carried into effect, notwithstanding the opposition of all the owners of ships or steamboats, or the coal itself may offer.

I left Calcutta for Abyssinia on the 12th of February with 1250 tons of commissariat stores, 125 horses and mules, 90 muleteers and followers, 40 days' provisions and water for the men and horses, and field trappings, etc., for 150 animals. At sunset we turned the ship round at Fisherman's Point, and let go the anchor in nine fathoms. The chief mate (a lout and regular specimen of the mate of a country ship at present) called out to the second mate to drop the *stopper*. It was done instantly, and of course as the anchor was not on the ground the chain broke at eight fathoms, and I lost a splendid *Rodger's* anchor. We brought up with the other anchor, and in putting together a new Trotman's after dark, the mate succeeded in crushing a European quarter-master's finger, and in nipping the first joint off one of the fingers of the second mate. I had no surgeon (European) on board so had to dress the wound myself; and thanks to cold water and lint and a little sticking plaister they both got all right.

We arrived at Madras on the 18th, embarked there twenty troopers of Hodgson's horse (10th B. C.) with their horses, tats, followers, etc., and two officers, and proceeded on the 19th to Galle. We left Galle on the 24th, having watered and coaled and proceeded very pleasantly for the first four days. We then fell in with a strong half gale of wind from N.N.E., with one of the most uncomfortable cross seas I have ever experienced in the Indian Ocean. We were carrying a press of canvas, and going ahead full speed very comfortably when suddenly the engine stopped at 8 a.m. The moment this occurred the ship commenced to roll very much. However we brought her to and steadied her with the canvas, and found out that one of the *pins* of the slide valves had dropped out; this defect was made good as soon as the engine cooled sufficiently for the men to work, and on we proceeded again.

This trifling affair, insignificant in itself, alarmed the commanding

officer of troops, a man whom (if I was not averse to expressing opinions of persons in high places) I should call a "feather bed soldier." This officer took his dreams for facts, and made a report to his general that occasioned me much trouble and anxiety for the next six months. On the evening of the 8th March we arrived off Aden, but did not anchor till next morning having been nineteen days under steam from the Sand Heads.

We coaled at Aden of course and proceeded for Zoolla, when about forty miles west of Aden we found the screw propeller adrift on the shaft. The engine was stopped, and we ran in shore shoaling the water to twenty fathoms and then dropped the stream anchor. The next day was dead calm, but a steam transport returning to Aden from Annesley Bay passing by us, I sent a boat on board requesting the captain to report the circumstance at Aden. About 10 p.m. that night H.M. ship *Spiteful* came and took us in tow. Shortly after a breeze sprung up from E.N.E., which carried us up to Adjucee Island, and we anchored in Annesley Bay on the morning of the 13th.

It was really a splendid, thrilling sight, to behold the magnificent fleet that was before us of upwards of two hundred sail of the finest ships in the world anchored in that bay, with its barren, desolate shores. Gratifying as this was, it was no less pleasing to see the thorough good humour that existed throughout their crews, and how heartily every one worked who had any duty to perform. Captain Tryon deserved more credit than appears to have been awarded to him for his management of the transports, and for the discipline he maintained among them. Every ship was always ready for the service required of her; he inspired the masters of transports with the desire to do their duty. He listened to their complaints with attention, and he treated them as officers, *with respect*. In fact, the whole of the naval officers in Abyssinia, and the masters of transports, pulled together much better than I have ever seen before. There were plenty of us there who well remembered serving under Keppel, and old *Boxer*, and we all agreed that the change was for the better.

The large fleet of transports fitting out in India, caused a demand for lascars, far exceeding the number available. To meet this demand, the crimps, or as they are called, the ghaut-serangs, were always ready with a good looking set of real lascars, to sign the articles, and then quietly embark instead of them jungle coolies, horse-keepers, etc., on board the ships just as they were sailing, dressed in calasses clothes. The consequence was that these native crews were very sickly; they had a disease among them called by the doctors, "berry berry," of which several died. I, myself, after leaving Calcutta, found four of my crew incapable of work from chronic dysentery. They were left in the hospital at Aden in March, taken out in the middle of June, put into hospital again on arrival at Bombay, and in consequence hospital expenses and wages were exacted by the shipping master in full for the whole voyage! Finding my lascars getting sick in Annesley Bay, I gave them double allowance of beef (*i.e.* half a pound) and potatoes, with onions, every day, in addition to their usual rations,

and after the first ten days I had not a single sick man on board, either European or native; although the heat was occasionally very great, in fact, the Europeans were singularly healthy.

On the 1st of April, our cargo being all landed, and the Regatta just at its height, H.M.S. *Spiteful*, at four p.m. came ahead and took us in tow for Aden to ship our screw. This could have been done very much better in Annesley Bay, but of course orders must be obeyed, and for Aden we started. We went down to the seven-fathom patch all right, and after communicating with the ship of war at anchor there, on we proceeded. It came on to blow fresh from the S.E. through the night, and at eight a.m., the *Spiteful* finding she was not doing much wore round, and we set our fore and aft sails and steered in for an anchorage near the village of Edd. Our noon observations showed us, that we were only twenty-seven miles from the seven-fathom patch. (This will serve as a caution about currents.) As we stood in shore the wind fell light, and at five p.m. we anchored in thirteen fathoms smooth water. We started again at daylight next morning, and at daylight on the 6th, anchored at Aden.

Here we trimmed ship at once by the head, and on the morning of the 8th, hauled the ship's stern as close to the rocks of Flint Island as we could get her. This is the best place in Aden for a steamer when there is anything to be done to the screw. I examined the bottom very carefully, sounding myself with a pole at low water, and sending down a Sauralli diver to bring up a specimen from any hard place. The bottom is sand, over rotten coral and is quite even, deepening gradually from ten feet at the rocks to nineteen feet at something less than half of a cable from them. Consequently a ship with her stern on the ground has a large portion of her water borne and afloat. The tides are very irregular, and as a rule the night tide is higher than that of the day. On the night of the 9th, the water fell seven feet, and the next tide was a foot higher than we ever saw it afterwards. On the 10th, 11th, and 12th, the rise and fall did not exceed three feet six inches. However we succeeded in shipping our screw and securing it all right on the 15th, and hove the ship off that evening, and reported ourselves all ready for service!

The Peninsular and Oriental Company's agent very kindly allowed the engineers to work at their factory, and supplied them with iron, rivets, and other things required to make good our defects. This was very kind, but the little bill that followed rather astonished me, for I found 3cwt. 1qr. 14lbs. of iron cost Rs.226 12a. 10p., in other words, £150 per ton, or 60 per cent. more than copper.

On the 19th of April, we sailed for Zoolla at six p.m., passed through the Saurall Strait at eight a.m., and was up to the Haycock at two p.m., where we were stopped by the steamer *Sir Bartle Frere*, from which we had news of the defeat of Theodore, and were ordered back to Aden. We struck our yards and steamed back against a strong S.E. wind. As a precaution we steered a point to the southward of our course to allow for the current, and at ten p.m., found that we were up in ten fathoms close in to *Zee* Hill, having been set

by current more than half way across the Red Sea in eight hours. We hauled out S.S.W., passed through the large Strait, and took the news to Aden at five p.m. on the 20th. On the next day one of the Peninsular and Oriental Company's steamers came in with the news of Theodore's death, and the fall of Magdala.

We did not start again till the 13th of May, as we were waiting to take up 500 animals expected from Muscat. They did not arrive, so on the 13th we embarked twenty-eight followers, a set of ragged rascals who had been left behind by one of the steamers a few days before. They had obtained leave to go on shore to have a burra connor (*i.e.* a great feed), but really to get drunk, and were thus adrift at Aden. The political agent ordered them to be sent on in my ship, but he forgot to send any provisions for them; and as we had no Government stores or provisions of any kind on board, I had to feed them for six days out of the ship's allowance. We arrived at Annesley Bay on the 15th, but did not get clear of my ragged passengers till the 18th, when Colonel Warden took them over. When the ship's accounts were settled after she was paid off out of the Service, the Commissariat at Bombay charged me thirty-six rupees twelve annas for feeding those twenty-eight men with my ship's provisions. Why I should be compelled to pay three pounds thirteen shillings and sixpence for feeding a gang of ragamuffins for a week, who had been ordered on board by the Government surpasses my comprehension. But there was no appeal, and I paid the money!

The embarkation at Zoolla commenced in the first week in June. We were watered and provisioned by the 5th. On the 7th, Theodore's son passed close under our ship's stern going off to the *Feroze*. On the 8th, we embarked 168 horses and mules and about 165 men (followers and Europeans). We were then inspected, and received our sailing orders, one of which was to tow the *Berenice* to Aden. We started at half-past four a.m. on the 9th, and went down to pick up the *Berenice*. She was lying close to H.M.S. *Spiteful*. The First-Lieutenant of that ship very kindly run a line with his boat from the *Tim Whiffler* to us, and allowed us to make fast a line to the *Spiteful*. This saved us the trouble of letting go an anchor in twenty fathoms water; the *Spiteful's* boat also run our lines for passing hawsers, and this saved us much trouble. The *Berenice* was three hours purchasing her anchor, so that the sea breeze came in just as we had cleared the ships, and we had to tow her out of the Bay against a strong half gale dead ahead.

We cast off the *Berenice* on the morning of the 12th, about seventy miles east of Aden, and went to an anchorage there at three p.m., observing a ship on a shoal as we were going in. We having coaled and watered, we left Aden at noon on the 15th, and took the ship *Egeria* in tow. We cast her off when well east of Aden, and proceeded for Bombay, where we arrived on the 27th of June. Our animals were landed in due course, and the ship paid off in July. On the 29th of August we started for Calcutta, via Colombo and Madras; anchored in Madras Roads in the usual steamer anchorage off the pier on

the 11th, and next day commenced taking in cargo. On Sunday, 13th, a very heavy surf set in, and our ship being close in shore, the *off-set* current caused her to swing with her stern to seaward. At one p.m., found the propeller adrift, the heavy sea striking it had broken the tail key, and the propeller had slipped aft. We at once rove tackles to lift propeller, and I went on shore to engage the services of an European diver, who is retained there by the Madras Government. We had a pattern of the tail key which I took to the Superintendent of the Public Works, and also a pattern of the fore and aft key, and he kindly undertook to forge both for me.

The diver, Mr. Shillitto, came off on Monday 14th, but said that the sea was too heavy to work, especially so as the screw was adrift and might strike him; my chief and third mates then went on a couple of catamarans, and with the assistance of the catamaran men succeeded in getting the propeller fast with a couple of good chains one fast on each quarter. But the diver would not go down to put the bolts in for the tackles. On Tuesday 15th, the diver again came and looked at the work but said the sea was too heavy! I called him and his mate and told him that if the propeller was shipped by the evening of the 17th, I would give him Rs.200 and Rs.50 to his mate. He said, Sir, I am sick to-day and cannot go down, but I will do what is required to-morrow. I heard that the financial arrangement had been reported to a left-handed Mrs. Diver on shore, who promptly stopped supplies. However this may be the diver and his mate was off at daylight, and the propeller was hung, and the shaft set fair for entering the fore and aft key by 8.30 a.m. on the 16th, on the 17th we got the fore and aft key in and the propeller hove forward into its place with heavy fore and aft tackles. On the 18th we drove in the tail key, and secured it with a piece on the thin end and screw bolts.

On the 19th we got up steam and went out for a trial trip. The steamer was under way three hours and everything went very well; I then came to an anchor and ordered the engineers to blow off steam. I myself went on shore to make arrangements for cargo coming off. What the engineers may have done on my leaving the ship is unknown to me, but within half an hour the chief mate felt the engine *racing* round, and the chief engineer reported that the propeller was adrift again. It proved true, but I had the diver more in hand this time. Another key was forged for me at the public works, and on Tuesday, the 22nd, we had the propeller again shipped and the tail key driven. On Wednesday I landed to try and get a survey on the ship, that I might have a certificate for the Insurance Offices, stating that the propeller was properly shipped, but I was unable to procure one as there was no Inspector of Marine Machinery at Madras. The shippers on this refused to ship their cargo, and I was forced to go on to Calcutta empty, leaving a freight of upwards of eighteen thousand Rupees for want of this certificate. We left Madras on the 25th of September, and arrived at Calcutta on the 1st of October, and at once cleared out all the engineers. In Calcutta we docked, cleaned, and painted, shipped a new propeller, made good defects, and chartered for Bombay.

## The Icy Atlantic.

There is abundant matter for comment in the foregoing letter, but before we allude to it let us see some of the effects of not attending to the precautions adopted by Captain Hosken. Did ever the reader hear of the *Harvest Home*, of Newcastle, and what befel her on her voyage to Miramichi? or the *Lady of the Lake*, of Aberdeen, on her voyage to Quebec, from Belfast, with passengers? Here is the account of these voyages.

While on board of the brig *Lima*, on her voyage from Newfoundland, we heard the report of a gun on the morning of the 13th of May, when in latitude 46° 40′, longitude 46° 55′, and observed through the fog, at some distance, a boat making to us from the edge of the ice. This was at first imagined to be the crew of one of the sealing craft whose arrival was anxiously looked for in St. John's. We immediately hove back our mainyard and lay to, when we discovered, on a nearer approach, the long boat of the *Harvest Home*, which sailed from London about the 3rd of April last, under the command of Captain W. Hall, of Newcastle, with a crew of fifteen men; this boat, containing thirteen of them and one man from the *Lady of the Lake*, was then taken on board, and they communicated the following particulars:—

"On the 9th of May, when going with foresail hauled up and topsails close-reefed, the *Harvest Home* was struck by a large piece of ice on the larboard bow, which broke both breast-hooks, stove in the cut-water and sides, and started the treenails and planks as far as the midships. A mesh net was speedily made of the best tow-line to protect her from further injury, and both pumps were kept going till Friday morning, when about four o'clock they found fourteen feet in the hold and the water gaining on them. Being unable to stand to the pumps any longer, the captain (who had not left the deck for twenty-four hours, and had been on the bowsprit when she struck) ordered coffee for the crew who were perfectly exhausted.

"About five a.m. they all thought it better to abandon her, with the exception of the mate, who seemed much attached to the captain. On asking for the long boat, the captain declared that he saw no place for them to go to, but if they had made up their minds he would offer no obstacle to their leaving. He allowed them some water and provisions, and then committed them to the care of the Almighty God. They then pulled to windward, through the opening ice. After an absence of a few hours, perceiving a pretty clear channel, they returned to the vessel, to ask the master and mate to join them; but both peremptorily refused. After an absence of a few hours, they once more returned and repeated their request; the mate's reply was, "Not till she had turned the turtle." Some effort was made by the master to get the boys back, but they preferred staying by the long boat. The master went aloft to look out for vessels. The mate had put on his best clothes, and got the jolly boat all ready in the slings, with charts, quadrant, provisions, etc., on board.

"As the men found all attempts fruitless to induce them to leave, and dreading the approach of night, they pulled in quest of a place of safety; which they at length found under the lee of an iceberg. As the cold was intense, the boys suffered much from cramp during the night. At daylight they observed a vessel a long way to leeward, for which they rowed. On getting about two-thirds of the distance, picked up an oar, which they perceived to be one belonging to the jolly boat, but could not say whether it had been left in her when alongside, or been dropped from the ship in launching the long boat. Found, on getting near, that she was their own vessel, from which they had drifted very far during the night. Her guard-boards forward were deep in the water, and she rolled heavily in the sea. Her ensign was perceived hoisted in the main rigging, union down.

"As the skiff was no longer visible, they presumed that the captain and mate had left during the preceding evening. Edward Black and John Smith were sent on board for an additional supply of provisions, having only two bags of bread and a small allowance of rum and water. On their entering the cabin they saw the remains of food, which had been cooked during their absence. A cask of porter which was lashed under the steerage ladder had the head driven in, and a considerable portion of the contents seemed to have been drawn off. There was also some appearance of cooking having taken place in the caboose. One of the small kegs from the long boat was then handed on board and filled with porter. This, with some fishing tackle, was all that was taken from her by Black and his companion.

"While they were on board, however, a boat, containing upwards of thirty persons, came under the opposite quarter. They appeared for the most part to be emigrants, three of whom were females. They showed great eagerness to get on board, and considered themselves rescued from a watery grave; till, on looking down the main hatch, they observed the water above the beams, ranging fore and aft over the ballast. They then made a rush for the boats, which lay off to avoid being swamped. The captain of the *Lady of the Lake*, and it is supposed about ten of the passengers were in their long boat, but quite unprovided with oars, water, or provisions. A few clung by the wreck, but a greater number slid over the chains and were drowned. The crew of the *Harvest Home*, being anxious to recover their two companions, dropped under the stern, when Black and Smith swung down by the rope; several of the others attempted in vain to follow: one, George Jordan, jumped from the taffrail into the bottom of the boat, and nearly upset her. Observed five or six dead bodies which were drowned in attempting to get into the *Lady of the Lake's* long-boat. Jordan, a poor lad who was shipped as a servant from Ireland, is supposed to be the only survivor from the vessel."

The foregoing refers to the hapless condition of the *Harvest Home;* now for that of the *Lady of the Lake*:—

"He states that the *Lady of the Lake* sailed from Belfast, with about 200 passengers, for Quebec; that they had boisterous weather all the passage; that on the morning of the 11th of May at seven o'clock

they struck against a pan of ice. The shock was not at first much felt, and no danger was apprehended. On going below for provisions in half an hour afterwards, one of the men perceived water casks, etc., floating about the hold. A general cry was then made that the ship was sinking; some screamed in a state of delirium, others threw themselves on deck in the usual attitudes of devotion. The pump was double manned, but had no power to keep the water under. The mate and four men entered the jolly-boat, taking some canvas, with the avowed intention of stopping the leak; instead of doing so, they lay off to watch the fate of the ship. They had no provisions or water with them, indeed nothing but a bottle of rum. The captain made several attempts to recall them, but the mate only replied by waving his hand.

"About five-and-twenty passengers, with the master and two of the crew, then got into the long-boat. Many were drowned in attempting to follow. With this number, however, she pushed off, without oars, provisions, or water, rowing the boat with the bottom boards. On getting about a mile from the *Lady of the Lake*, perceived her go down, and Jordan thinks about 160 passengers then perished. As night was approaching, the boat took shelter behind a block of ice; and on Sunday morning they perceived a brig, for which they pulled, and found it to be the *Harvest Home*."

These particulars differed in no essential point when stated by the men *seriatim* on board of the *Lima*. From all that can be learned, the greatest anxiety still exists with regard to the hull of the *Harvest Home*, and the few emigrants who clung by her. Many of the crew think she must have burst in pieces shortly after they left her. The fate of the master and mate in her jolly-boat, and of the master of the *Lady of the Lake*, with the few emigrants and the mate of the same vessel, with his four companions is shrouded in equal obscurity. The weather was boisterous while the *Lima* was among the ice, and our own situation one of too great peril to permit the smallest chance of discovering any of these parties.

When in latitude 46° 20′, longitude 45° 40′, spoke the *Buoyant*, of Newcastle, bound for Newfoundland; the master of which vessel received from us five of the men. The remainder were safely landed at Liverpool.

J. Mc G.,
Passenger, per *Lima*.

Liverpool, June, 1833.

Comments on the foregoing would seem superfluous. The case, one would suppose, is sufficiently dreadful to insure the utmost precautions being taken to prevent a repetition of it. But alas, although it is said to be "never too late to learn," that learning, to any good purpose, is indefinitely deferred, or it is insufficient to secure those precautions which would prevent them. But here is another case of wholesale suffering, which occurred in the spring of 1849, or thereabouts.

The unfortunate vessel, the *Hannah*, was a brig between 150 and 200 tons burthen, belonging to Maryport, and manned by a crew, it is said,

of twelve seamen, under the command of Mr. Shaw. the master. On the 3rd of April she sailed from Newry to Quebec with nearly 200 emigrants on board, having previously been examined by her Majesty's emigration agent at that port. The emigrants chiefly consisted of agricultural labourers and their wives and children.

The passage up to the 27th, considering the season of the year, was as favourable as could be expected. The vessel then encountered heavy winds and a quantity of floating ice. The master, as well as possible, bore off, in order to clear it; but it floated round in huge masses, and on the morning of the 29th, the unfortunate ship struck on a reef of ice of such magnitude as to carry away part of her bottom. It was about four o'clock when she took the ice.

The sounding of the pumps at once convinced the crew that the vessel was foundering, as there were several feet of water in her hold, and it was rapidly increasing. As the only chance of keeping the ship afloat a cry was raised to keep to the pumps until assistance could be obtained from some passing vessel, as also, it is presumed, to allow the boats being prepared for the rescue of the emigrants. What steps were taken to secure their preservation, no mention is made in the report received; a charge, however, is laid against the master and the first and second officers of their having been guilty of one of the most revolting acts of inhumanity that can be conceived. They had got the life-boat out, and the moment they found the vessel would inevitably go down, they jumped into it and abandoned the wreck with the living mass on board.

Screams for help now rent the air, and it was with difficulty that the remainder of the crew could induce the frantic creatures to comprehend the only chance left of saving their lives. Fortunately the ice was firm under the ship's bows, and the seamen convincing them as to its security, many got on it. Its solidity being then apparent, a desperate struggle took place among the emigrants to leave the wreck. Men, women, and children, with nothing on but their night attire, were to be seen scrambling over the mass of ice. Many of the poor creatures slipped between the huge masses, and were either crushed to death or met with a watery grave.

The last to leave the wreck were some of the crew, who contrived to save a small portion of spirits and a few blankets. Soon after they had got clear, the ship's stern rose as it were above water, and then went down head foremost, just forty minutes after the collision with the ice. The sufferings of the wretched creatures, exposed as they were amid towering masses of ice, with a raging freezing gale of wind from the S.S.E., were most harrowing. The seamen who were amongst them humanely gave up what covering they had to the females, who had been shockingly wounded and bruised in their course over the ice. Thus were they exposed the whole of that day till five o'clock in the afternoon, when a vessel hove in sight, and bore down to the edge of the field of ice. It proved to be the barque *Nicarque* (also bound for Quebec), Captain Marshal.

The statement made by that gentleman relative to the steps taken

by him and his crew for the recovery of the survivors, is to the following effect. On the 29th, about half-past six, the wind blowing a strong gale from S.S.E. and a thick fall of sleet, the ship laying to the windward of a large field of ice, Cape Ray being S.E. by E. about twenty-six miles distant, discovered something on the ice, which subsequently turned out to be a flag of distress. Made all sail and gained the edge of the ice, found, to his astonishment, a mass of living people upon it. He got the ship's ice-fenders down and prepared to take the ice.

By seven o'clock got so close in that in the course of two hours he and his crew succeeded in getting hold of about fifty of the poor creatures and placing them on board his vessel. The remainder stood crouched together in another part of the ice some distance off, inaccessible from the position of the ship. Captain Marshal had all sails clewed up, and got a rope fastened to a piece of ice, and with the long-boat pushed off with his men to the spot. After considerable difficulty he succeeded in getting to the edge, where they remained huddled together. The whole of them were saved.

No pen, Captain Marshal observes, can describe the pitiable situation of the poor creatures. They were all but naked, cut, and bruised, and frost-bitten. There were parents who had lost their children, children with loss of parents; many perfectly insensible. The number that got on board the *Nicarque* was 129, passengers and seamen. The greater part of these were frost-bitten. As far as Captain Marshal could ascertain from the survivors, those who perished by being crushed between the ice and frozen to death were from fifty to sixty. As soon as he had succeeded in getting all on board, the ship was got under way and proceeded in the direction of Cape Ray. Every comfort that his means and the ship's capacity afforded were placed at the sufferers' disposal. The next day, meeting with the barque *Broom*, of Glasgow, twenty-seven of the poor creatures were transferred on board of that vessel; and in the course of the following day forty-nine of the survivors, for the sake of comfort, were placed on board three other vessels. The *Nicarque* reached Quebec, where the remainder of the sufferers were landed. The fate of the master and the others who took to the life-boat and abandoned the emigrants is not known.

It is related by Columbus when he discovered island after island after his land-fall, that each island seemed to be larger and more beautiful than the preceding one; and here it seems that each tale is more dreadful and more harrowing than that which precedes it. The case of the sufferers by the *Hannah* seems even more distressing than any of the former, and yet the lesson of precaution is not yet learnt. But we have another in the case of the *John Rutledge*, which seems even more dreadful still,—a prolonged, lingering scene of suffering, despair, and protracted death.

On the 20th of February, the packet-ship *John Rutledge*, of New York, while on her voyage from Liverpool, struck upon an iceberg and sunk, with the mate, carpenter, and thirty to thirty-five passengers on board. The only information with regard to this disaster is derived

from the sole survivor, Thomas W. Nye, of New Bedford; from whose account the subjoined narrative has been taken.

The *John Rutledge* left Liverpool on the 16th January, with 120 passengers, and a crew of officers and men numbering, we are told, sixteen persons. During the passage she encountered severe weather. One of her crew was washed off the bowsprit, and a male passenger was carried through the bulwarks by a heavy sea and drowned.

On the 20th of February the *John Rutledge* was struck by an iceberg, and was abandoned the same evening. Before leaving his vessel Captain Kelly, finding that she leaked badly, manned the pumps with passengers and seamen, and as the leak continued to gain upon her, had about 100 bags of salt and a number of crates of crockery broken out of the forehold and thrown overboard. Getting clear of the ice soon after, it was discovered that a plank was started from her forefoot, and an attempt was made to stuff the leak with blankets and rags. It appears that this was not very successful, as the captain subsequently decided to abandon the vessel. There were five large boats on board, in which 134 persons were to be saved.

When last seen the ship was down to her mizen chains in the water; and from the character of her cargo—salt, iron, and crockery—she probably went down in a short time afterwards. Of the thirteen persons in the last of the five boats, there were four women, one little girl, five male passengers, Mr. Nye, a Scotch sailor, and the boatswain, an Irishman. For the subsistence of these people there were only six or eight pounds of bread and a gallon of water. The mate had placed a compass in the boat, but his wife, in leaping from the ship, had broken it. Cast thus helplessly upon the open sea, among the fogs and mists of the bank of Newfoundland, and surrounded by drift and berg ice, their prospect could hardly have been more gloomy.

Soon after the boat broke adrift night came on, how it passed may be imagined. Little was said by any one, and probably all of them soon came to a sad sense of their dreadful situation, for as soon as Mrs. Atkinson entered the boat she seized the vessel containing the water, and being a powerful woman, fought off all those who attempted to get a drink from it. Nye got only two or three mouthfuls; the rest was drunk by herself and the boatswain. What disposition was made of the bread does not appear. The probability is, that there was no organization whatever among the little party, but every one looked out for himself. Having no compass nor sign by which to steer, they did not exert themselves other than to keep the boat before the sea. The sailors were warmly clothed, as was Mrs. Atkinson; but the passengers for the most part were scantily attired, and suffered keenly from the cold.

Day after day only dawned to raise their hopes anew with those of succour, which the long and dreary nights turned to the bitterness of despair. Thus time passed until the third day, when one of the little band, a man whose clothes were too thin to shield him from the bleak weather, sunk under the combined effects of cold and hunger, and his body was committed to the deep. Then a woman died in the arms of

her husband and little daughter, and her corpse was also silently dropped into the sea. The fourth day came, and with it the same angry sea, the same leaden sky, no ray of hope anywhere visible. The cold was so intense that it almost froze the marrow, and not a drop of water could be obtained, while only a small quantity of food remained.

Human nature could not bear up much longer against this privation and exposure, when, just as they were about to give up all hope, the wind lulled, and lo! a brig hove in sight. "She was not very far off," and they pulled for her with might and main. Signals were also made. For some time they seemed to gain upon her, but she did not see them, and the wind freshening she was soon out of sight. With her went all hope. A burning thirst soon fell on all of them, and heedless of young Nye's earnest appeals, they fell to drinking salt water. This only increased their thirst, and they drank eagerly and repeatedly of the fatal fluid.

What followed is the old story of delirium and death. One by one they grew mad and madder; besought each other to kill them; then they dreamed of eating at sumptuous feasts, and spoke of the rare dainties which mocked their grasp, of the delicious beverages which they in vain essayed to quaff. At length worn out with the intensity of their physical and mental sufferings, they grew more subdued, their haggard features became rigid, their wild eyes assumed a glassy look, and their shrunken forms seemed gradually to subside, the next lurch of the boat tumbled them off the seats dead!

Such were the sights young Nye witnessed daily. As they died he threw their bodies into the sea, as long as his strength lasted. He says that, although his thirst was of the most agonizing character, he not only warned his fellow sufferers against drinking salt water, but showed them how he obtained relief by simply rinsing his mouth occasionally. They were helpless and desperate, and would not listen to him. The boatswain grew delirious and died within twelve hours after drinking it. In his delirium he was most violent. He attempted to throw over the basket with which they baled out the boat. Nye did his best to quiet him and stop him from drinking more sea-water; but he struck him a severe blow upon the chin. Mrs. Atkinson was also very violent; and being of a strong constitution, it was a long time before she expired. His recollection of events which occurred about this time is very indistinct.

On the sixth day there were only himself, a small woman wrapped up in two blankets, and the little girl alive in the boat. Before sunset the child died, and on the following day the woman breathed her last. He had strength enough to throw the body of the child overboard; but that of the woman, together with the bodies of three others, were so coiled up under the thwarts that he was unable to extricate them.

Feeling a strong sense of drowsiness creeping over him, he fastened a red and white shirt to an oar, and, hoisting it to attract any passing vessel, he coiled himself up in the stern of the boat and dozed away the hours. Occasionally he would rouse himself and bale out the boat, and then lie down again. He did not sleep, but the time passed in a

sort of waking vision. Occasionally he felt light-headed, and began to dream of being at home with his family in New Bedford. Fearing that he too might be delirious, he fought against these influences, and kept himself awake by various means. At first the sight of his ghastly companions caused him much distress, and his mind became oppressed with gloomy forebodings. He resolved to shake these feelings off and hope for help even to the last, thinking it better to go to the next world with all his senses about him than to die a raving maniac. Thus resolved, he bore up bravely and to the end.

On the 28th of February, a ship hove in sight of the lonely boat. He says that he saw her before those on board discovered him, and he was sure from the first that they would pick him up. That vessel was the packet-ship *Germania*, Captain Wood, from Havre, bound to New York. When Captain Wood descried the solitary boat he ordered one of his own quarter-boats to be lowered, and sent an officer to see what it contained. As it approached him poor Nye groaned, "For Jesus Christ's sake take me out of this boat." They did take him out with womanly tenderness, and, with the boat and its fearful load in tow, rowed back to the ship. The young sailor was quickly transferred to the comfortable cabin of the *Germania*, and his late companions were thrown into the sea. It is a wooden life-boat, about twenty-five feet long. After being thoroughly cleansed it was hoisted on board and brought into port.

Of the other boats of the *John Rutledge* no tidings have been received. Nye thinks that those were as badly off as he was, if not worse, and entertains but little hope that any of them would be picked up. Only the captain's boat was furnished with a compass, and it is probable that all of them were poorly provided with food and water. The survivor believes that with plenty of these the majority of the people in his boat could have endured the cold until they were picked up.

These are harrowing tales but they are no less true, and such facts stand on record as so many solemn warnings to the mariner;—we say the mariner, and mean him who has charge of the vessel and all on board, and whose duty it is to provide against their repetition with those precautions which, under a merciful Providence, are sufficient.

Shall we continue these tales of sorrow, suffering, and death? It would be no difficulty, for they have been too often repeated. But our tale is perhaps sufficiently lengthened already, and when we read of "masses of ice in the Atlantic exceeding any of the kind that have for many years been met with,—immense fields of ice, some hundreds of miles in extent, towering up in all manner of forms to a great elevation" (above 300 feet), then may we fear that on those masses are some of our unhappy fellow-mortals, perhaps suffering distress which no language can reveal until a protracted death becomes a merciful termination to their existence.

One naturally enquires, what is the cause of all this suffering and death? Ice is well known to roam about a portion of the Atlantic, obedient to the winds and currents, as regularly as the seasons return,

and although, as in most of these accounts, we generally read that ships were struck by icebergs as if they sailed along faster than ships do, the fact is that ships strike them by running blindly against them from want of a careful precaution. For so little look-out is there kept in these times that if there are no icebergs to run against they will run against each other. There never was a period in the history of navigation that more abounded with collisions between ships than the present. The want of sufficient watchfulness *at all times both night and day*, or, as seamen say, *a good look out*, may be considered the first in the list of neglected precautions.

The next is that of not slackening the vessel's speed in fog or in the night when it is not possible to see so far, with the greatest care, as by day. When this is the case what guarantee is there for safety? A ship running at the rate of several miles an hour in fog is risking wilful destruction. All may be imagined security and quiet routine, and in a few minutes more that ship has become a helpless wreck, plunged into a mountain of ice, which is keeping her shattered form on the surface while her unhappy passengers and crew are falling the helpless victims of a want of care on the part of the captain. [What a remarkable instance of this neglect was the late case of the *Normandy* in the English Channel.]

It is a question with naval officers whether lying by or preserving moderate speed is the best for navigating under these circumstances. In former days ships always lay by at night, even in fine weather, a custom which was followed in the last war, and still is in H.M. ships, by reefing and reducing sail, and making, as seamen say, a snug ship, and we never heard of such ships running into icebergs. A reduced rate of sailing, but yet such as to keep the ship under command, in the darkness of night, or when overtaken by fog, is another which may be placed in the list of neglected precautions.

"Whenever there is fog beware,
For danger sure is lurking there."

When sailing in fog no careful commander ever neglects the usual fog signals made by ships to give notice of their approach, and he observes the foregoing precaution of *reduced speed.*

But there is another precaution which we fear is too often neglected, for in all the accounts of these distressing accidents nothing is said of temperature. It is well that the ice will give notice of its approach by reducing the temperature of the atmosphere as well as that of the sea. We might advance page after page of testimony to this fact. But let the reader be contented with what Captain Hosken has said above,—"*The temperature of the water when within two miles of the first iceberg seen fell suddenly from* 50° *to* 36°, *air* 40° *to* 36°."

Here we repeat, is ample warning to the careful navigator. Let the careless one ponder it well, and when he neglects it let him remember that from doing so he may have to answer for the loss of all on board.

It is a matter of some surprise, as it is certain that emigrant ships

have to pass ice on their way to America, that an attention to the thermometer has not been insisted on by authority, and especially so since meteorological observations at sea have been more attended to of late than formerly. But whether to windward or to leeward of ice, the vicinity of it will always be indicated by this infallible monitor. Let him clearly understand that from a multitude of observations it has been established beyond all doubt that a navigator may discover his approach to these formidable dangers when he is at such a distance from them as to be able easily to avoid them, by attentively examining the temperature of the sea.

Here, then, we have whispered words of warning to the unwary wanderer on the icy sea. We have shown the sad consequences which the neglect of those precautions that belong to the duties of those in whose charge he may be is sure to bring to pass. We have shown him, that although it is artfully stated that icebergs strike against ships, that in reality ships run against them; the result of which as we have seen, is severe and perhaps protracted suffering, generally ending in death! Will he profit by the lesson?

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## Report of the Controller of the Navy on the Ships of the Channel and Mediterranean Fleets.

*(Recently laid before Parliament.)*

The reports called for by the Admiralty order of the 28th September, 1869, respecting the performances at sea of Her Majesty's ships *Minotaur*, *Northumberland*, *Agincourt*, *Monarch*, *Hercules*, and *Inconstant*, are of considerable interest, and seem in some important respects to contradict the impressions conveyed by Admiral Warden's reports, dated in 1867, and laid before Parliament in 1868.

The principal feature of the very voluminous reports then laid before Parliament was, that ships of recent design were, in the Admiral's opinion, inferior in certain respects to ships formerly designed.

The ships of recent design to which Admiral Warden appears to have referred, were the *Bellerophon*, *Lord Warden*, *Lord Clyde*, and *Pallas;* and the ships of older design to which he compared them were the *Minotaur*, *Warrior*, *Achilles*, *Royal Oak*, and *Prince Consort*.

The observations I made at the time on the facts recorded by Admiral Warden (*see* my Memorandum of 17th December, 1867), showed that a different conclusion from the one he arrived at was inevitable, if all the circumstances were understood; but these remarks did not accompany the Parliamentary Return, and the impression produced by the Admiral's report was left undisturbed.

The late trials of ships of recent design, omitting any comparison between wooden iron-clads of any design, as being completely out of date, have, as will be seen by the Journal of the Captain of the Fleet,

and the reports forwarded by Vice-Admiral Sir T. Symonds on the performance at sea of the iron-clad fleet, shown distinctly that the ships of recent design have exhibited an incontestable superiority over the ships of older design.

Three iron-clad ships of the *Minotaur* class were present under the command of Sir T. Symonds, designed by the late Constructive Department of the Admiralty; and three iron-clad ships of the most recent design by the present Chief Constructor of the Navy.

The description given of the performances of the *Minotaur*, and of her sister ships, is eminently satisfactory as to steadiness of gun platform, safety and comfort in a gale of wind; to which may be added, from other sources of information, speed under steam, and when carefully watched, economy of fuel at all times.

The admirable manner in which the *Agincourt* and *Northumberland* towed the Bermuda Dock, the high rate of speed they attained in doing so, with moderate consumption of fuel, must place these ships very high amongst the most powerful and efficient steam-ships ever known. On the other hand, their sailing qualities were indifferent, and their unhandiness in steering and turning what might have been expected from their great length. Neither the amount of armour plating they can carry, nor the power of their artillery, is such as to rank them among first-class vessels of war; and the extreme fineness of their fore and aft bodies, even with the limited armour plating they carry, has occasioned the plunging and washing away of light hull fittings referred to in these reports.

Taking the ships of new design, the *Bellerophon*, *Hercules*, and *Monarch*, with a view of comparing the qualities of the respective ships, it is to be observed that the *Bellerophon* and *Hercules* are broadside ships, and the *Monarch* a turret-ship; and as the former ship has been occasionally unfavourably commented on, I will point out that by the report of the Captain of the Fleet, that ship takes nearly the same place as to steadiness of platform, as the *Minotaur's* class. A comparison of her safety and comfort in a gale of wind cannot be made as she was not in company with those ships at this time, though in a former cruise, and in what Captain Goodenough describes as even a harder gale of wind, she proved herself a good sea boat, safe and easy in every way.

Practically, there is found to be no difference between the speed of the *Bellerophon* and that of the *Minotaur's* class; for while the latter, at a trial of six hours, full speed, realised an average of 14·165 knots per hour, the former, under similar circumstances, realised 14·055 knots; and Admiral Warden in his reports speaks of the remarkable economy of fuel shown by the *Bellerophon*.

It will be seen also, by returns furnished to their Lordships, that the *Bellerophon's* consumption of coal was less than any of the other iron-clads of 1,000-horse power forming the Mediterranean Squadron.

Without attributing remarkable sailing qualities to the *Bellerophon*, though former reports on this ship by Admiral Yelverton assign her a very good place, she has done as well as most ships which drag their

screws; and it is very remarkable that there is no record of her having missed stays during this cruise, though on her early trials it was often reported of her. It would not be too much to assume that as the use of the balanced rudder has become familiar to the officers and crew of the ship, these failures to tack will entirely disappear.

The handiness of the *Bellerophon* under steam, and the extraordinarily short time taken in turning a whole circle, nearly one-half less than that occupied by the *Minotaur* class, the far greater strength of her armour plating, and the formidable number of 9-inch guns carried on her main deck battery, place such a ship, as an engine of war, far above the *Minotaur* and *Agincourt*.

The *Hercules*, a ship of still more recent design, appears to still greater advantage.

The Captain of the Fleet gives to her and the *Monarch* the first place for steadiness of platform.

Captain Goodenough observes that not only is the angle of rolling smaller in the *Hercules* than in the *Minotaur*, but the nature of the motion is different, and in favour of the *Hercules*.

The captain of the ship speaks of her having displayed very good qualities in a heavy gale; adding, that he believes that the battery guns could have been worked, and the ship have been taken into action at any time during the gale.

The speed of the *Hercules*, at the measured mile, exceeded that of the *Minotaur;* and at the six hours' run, at full speed, fell but little short of it, though the trial was made under circumstances unfavourable to obtaining the best results in the *Hercules*.

The consumption of fuel, as reported by Admiral Sir T. Symonds on former occasions, was singularly moderate, and the report of the Captain of the Fleet remarkably confirms it.

Though the handiness of the *Hercules* under steam in turning circles was as remarkable as that of the *Bellerophon*, her steering under sail is much complained of, and on occasions it appeared that she would neither tack nor wear.

Moreover, the captain of the ship reports of her, that in a gale of wind, in consequence of her wild steering, he hove the ship to.

Under these circumstances, the ship's sailing was very unsatisfactory; but as the balanced rudder was new to the officers and men, and as similar effects in the *Bellerophon* disappeared after its operations were more thoroughly understood, it is not believed that this defect will continue, and one of the Assistant Constructors has lately been to sea with the ship, to watch carefully the effects and proportions of this rudder.

The armament of 10-inch guns, admirably mounted on Captain Scott's carriages, and the thickness of armour carried by this ship, which at the waterline is nine inches thick, place her far above any broadside ship which has yet been built as a fighting machine.

It must be observed that, in dealing with the armament of ironclads, the weight of broadside thrown is no criterion whatever of the power of the armament. The measure of that power is to be found in

the armour-piercing qualities of the projectiles thrown, and in the bursting charge of the shell which can penetrate.

The Tables of the armaments given by the Captain of the Fleet omit these considerations, without which the real force of the respective armaments cannot be understood.

The *Monarch*, a ship of an entirely new class, the only true sea-going turret-ship produced as yet by any Navy, is classed by the Captain of the Fleet, and by other information, as equal in steadiness of platform to the *Hercules*, and is spoken of as having behaved in an equally satisfactory manner as the other ships; and also that she could have fought her guns during the gale to which they were exposed.

Captain Commerell, in private letters, speaks of the ease, comfort, and dryness of the ship as extraordinary.

The speed of the *Monarch*, both at the measured mile, and during the six hours' run at full speed, exceeded that obtained by any iron-clad yet built, reaching 14·937 knots at the former, and 14·715 knots per hour at the latter trial.

The consumption of coal was less economical than that of the *Hercules* or *Bellerophon*, but about the same as that of the *Minotaur's* class. Some defects in the pistons, now remedied, appear to have considerably influenced this result.

The steering of the *Monarch* under sail, and her general performances under canvas, were not satisfactory, and in consequence the balanced rudder has been somewhat reduced at the fore part.

It is believed that this alteration will remedy certain difficulties arising from the first use of this new means of steering, and that the *Monarch* will be found to sail as well as any heavy iron-clad ship, which is compelled to drag her screw.

The handiness of the ship under steam, and in turning the circles at full speed, were on a par with the performances of the *Bellerophon*.

The turret armament of the *Monarch*, consisting of four twelve-inch rifled guns, when considered with reference to the angle of training and its armour-piercing power at long ranges, places the *Monarch* as one among, if not positively, the most formidable of the iron-clad sea-going ships in existence; though, until further trials, neither the guns nor their carriages can be deemed perfectly satisfactory.

The *Inconstant*, the latest design of all, is not an iron-clad.

She was designed to meet the large fast American flush-decked ships of the *Wampanoag* class.

All that the designer promised for this ship has been more than realised, as to steadiness of platform, speed under steam (16·5 knots per hour, at the measured mile), remarkable economy of fuel, handiness, good sailing, safety, and comfort in a gale of wind, and power of armament.

These assertions are founded on the reports of the Captain of the Fleet, and on those forwarded by Sir T. Symonds, to which may be added that, in her late trials with the *Warrior*, she outsailed that ship on every point, often to a very great extent.

This digest of the records in the Admiralty respecting the per-

formances of ships of recent design would but ill represent the whole advantage which has resulted to the public service from the adoption of the novel systems of construction which they embody.

The reduced proportion of length to breadth in the iron-clads, and the introduction of the bracket frame system of construction, have effected an economy in the public expenditure of very considerable magnitude.

A change in the dimensions, form, and mode of construction of an iron-clad ship results in so many minor modifications that it is scarcely practicable to calculate closely the total actual saving which has been effected by these improvements, but a rough approximation to the amount may be made, as follows:—

There are in the Royal Navy eleven iron built iron-clads, which were designed at the Admiralty upon the original plan; their hulls (without armour) weigh together 49,000 tons; and this aggregate weight of hull carries 12,000 tons of armour.

There are built and building seventeen iron-clads of recent design; their hulls weigh 50,000 tons; their armour 21,000 tons.

An extremely simple calculation will show that to have carried this 21,000 tons of armour upon the old plan an aggregate weight of hull of 85,750 tons would have been required.

A saving of 35,750 tons (85,750—50,000) of hull has thus been effected.

As the hulls of iron-clads cost, on an average, at least £48 per ton weight of materials, the actual reduction in the expenditure upon ships of recent construction, as compared with what it would have been had the early system been adhered to, is 35,750 tons × £48 = £1,716,000.

No doubt this amount is susceptible of much modification; but in view of the above facts it is absolutely certain that the saving effected by the introduction of the new system of construction has already largely exceeded a million sterling in the first cost of the Fleet, and the investigations which have been made in connection with the Draft Navy Estimates for next year, have shown most clearly that the further development of the bracket frame system of construction is resulting in still increasing economy.

A simple fact will illustrate this. We have already seen that on the old system of construction it required 49,000 tons of hull to carry 12,000 tons of armour.

In the three ships ordered this year (*Rupert*, *Devastation*, and *Thunderer*), 6,359 tons of armour will be carried upon only 9,137 tons of hull, whereas 25,966 tons of hull would have been required under the former system.

The difference, 16,829 tons at £48 per ton, would cost £807,792, which amount, large as it is, is probably not in excess of the actual economy that will be effected in adding these three ships to the Navy.

Part of the amount is probably due to the change in the type of ships, but on comparing the cost of the *Prince Albert* turret-ship, built upon the old plan, and carrying only 879 tons of armour, with the

estimated cost of the three new ships, I find that the above estimated saving is not greatly in excess, taking the armour carried as the basis.

The question would still be understated, if I failed to mention that as the efficiency of armour increases in value much more rapidly than its thickness, and as the very thick armour of recent ships has been associated with guns of extreme power, the actual strength of the Navy, as compared with other iron-clad navies, has been increased in a much greater degree than any of the previous figures would indicate.

The mere performances of ships cruising at sea in peace times, whether under steam or under sail, do not, and cannot, exhibit any of these advantages, which, nevertheless, obviously deserve the most careful consideration in estimating the fighting capabilities of the fleet, and the value of the improvements introduced into recent ships.

(Signed) ROBERT SPENCER ROBINSON.
*Controller of the Navy.*

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## TREPANG.

"TREPANG," or, as it is sometimes called, "Biche de Mer," is a snail-like sea-slug of from two to three inches in thickness. There are three varieties of trepang, perhaps more. Some are long and thin, and of a dark bistre colour, others short and thick, and perfectly black; but the most valuable variety, and that to which we would more particularly refer is rather short but very thick. Its colour is blackish, tending for the most part to a slight bluish shade, except its belly, which is tinged with a faint yellow. Its appearance is somewhat remarkable, for its body is found to be scattered over with small tubercles, or papillæ, running from one extremity to the other. As to which is the head or which is the tail, it would puzzle even Professor Owen himself to determine at the first glance.

It usually lies in about a fathom of water, and is perpetually rolled about by the under current of the surf, backwards and forwards, on the fine shelly bottom, the debris of many a surrounding coral reef that sparkles and gleams in the luxury of a brilliant variety of colours unknown except there, where beneath the surface of the clear waters of the Pacific, the tropical islands lave their jewelled feet.

The natives easily collect it in vast quantities. Their women and boys, for it would be far beneath the dignity of a native warrior to fish, walk out up to their middles in the sea, following along the margin of the coast, with one hand guiding forward a half filled canoe that floats beside them, with the other rapidly gathering into it the captured fish. While so employed ever and anon there protrudes from the surface of the sea the sharply pointed back fin of the ground shark, which like the steel blade of a scimitar, is for a moment held up menacingly from beneath by some invisible hand in the dancing sunlight, and then, like King Arthur's good sword, it as suddenly disappears and vanishes away. The natives apparently show no sign of

alarm at this, which, to a white man, would be a source of considerable uneasiness. They continue to replenish their little canoes, and when full to track them quietly along the glistening beach to some more even flat of the shell-sandy shore, where stands the pot accessary for the first operation in the curing process.

This iron pot is capable of containing several gallons of water. It is kept continually boiling by a fire of logs and sticks heaped round it, and every twenty minutes a fresh batch of trepang is plunged in and boiled, while the former supply, already sufficiently cooked, is taken out by small wooden shovels and laid on the hot sand to dry. In order to fully understand the nature of the change produced on the substance of the fish by this boiling, we should think that when first captured it is of some considerable consistency, at least it has the appearance of being firm and even hard to the touch, but as soon as it comes in contact with the human hand it ejects a large quantity of the substance with which its body had been previously distended, and if it were allowed to remain for any length of time in the palm of the hand one would be forcibly reminded of the oyster in love; for these curious little animals, though probably inspired by any other sentiment rather than that of an amatory nature, gradually dissolve away, however horrible the idea, like the hand of a certain fair lady which seemed to melt in compassion within that of her gentle swain, who, alas, in his fond conceit forgot that it was rather a warm afternoon in July. But, however that might have been, it is nevertheless true that the trepang partakes somewhat of the glutinous nature of jelly fish, for if boiled for only a short time it becomes of the consistency of very stiffly made isinglass.

The substance of our fish having been now reduced by the boiling process, to a texture sufficiently firm to undergo the next operation, it is dried by a sort of exposure of from five to fifteen minutes in the sun, slit open, and cleansed from the thick coral crust which is formed inside it. A small piece of stick is next inserted crosswise in the slit, so as to keep the sides apart like a wide-opened mouth. It is curious to observe with what precision and rapidity these dilettante natives will each perform their allotted parts in this operation. Indeed division of labour, supposed by some to be par excellence the child of civilization, is certainly well understood by the uncivilized savage. Unlike the European, whose scientific knowledge has raised the arts to such high perfection as to render it necessary for him to remain attached to the same one all his life, the native, like the American bush-man, is a universalist in his little way, and hence it is that as regards the very limited number of simple trades of which he avails himself, this division of labour results not in the improvement of the arts, but in the acquisition of the power of numbers.

Thus the trepang is rapidly got ready to pass through the third operation. For this purpose a small shed has been previously erected with bamboo canes and fern leaves. It has been so arranged internally as to present the appearance of a succession of shelves one above the other, reaching across an open trellis work, and on these the fish are

placed separately. A small wooden fire is kept constantly burning in the hut, which is constructed so as to be tolerably smoke-proof. The fish in the course of a few days become shrunk, dry, and hard, assuming the appearance of well smoked India rubber. They are then taken out of the huts and packed in casks or sacks, and kept dry in the store room ready to be shipped in the next vessel that visits the station, either to Singapore, Sydney, or San Francisco, where they are readily purchased by the Chinese merchants.

One of the most extensive fisheries is that conducted by the French amid the enormous coral reefs that surround New Caledonia, and which is perhaps one of the principal resources of its inhabitants, for the land is under but little cultivation at present, though doubtless it is well adapted for rice, sugar, coffee, and cotton. It is said there is gold on the island, but as none has yet been found, it remains for the present merely a colonial *on dit* to promote emigration there perhaps. The natives who are naturally fierce and warlike are kept in complete subjection by the French, who are always a little inclined to be unmercifully severe, though perhaps it is the kindest line of conduct to pursue, for it is always far better understood by the uncivilized, than the half-and-half policy so injudiciously employed by our colonial Government.

Occasionally small vessels of from eighty to a hundred tons register leave the Australian ports, well found, and with a six months' supply of provisions on board for the innumerable islands that lie to the north of New Caledonia, for the purpose of collecting these fish, and sometimes large fortunes are amassed in this trade. The crew of these vessels are, however, always well armed, as the natives here are not to be depended on, being mostly cannibals, with a few exceptions where the missionary stations have been formed. Moreover in these seas Malay pirates are still occasionally to be met with.

This piracy is easy to be accounted for. The islands to the north are all under Dutch control, and these used in by-gone days to make sudden descents upon the Malay natives, and carry them away in large numbers to Java, as slaves. Hence the Malays from the sheer necessity of defence originally, though subsequently by way of retaliation built the large proahs, and providing themselves with the terrible cresse (dagger) in their turn became pirates. Dutch slavery has however, long ceased, but the Malay piracy now and then bursts out afresh.

From the many islands and rocks that lie off these coasts the trepang is culled, especially from the low coral reefs in Torres Straits, where Captain Edwards and others in the employ of Mr. Robert Towns, of Sydney, have been successful.

It will be difficult to imagine what possible use the Chinese could make of this dirty, black, grisly little fish, which, now that it is cured, resembles somewhat the frog in the middle of the horse's hoof. Certainly, from its extremely unpalatable appearance, one could scarcely suppose it possible that even John Chinaman could ever really be prevailed on to eat it; but it would, we feel persuaded, be a token of a very high order of genius, were anyone to guess, what is in fact

the case, that John is so greedy after it as an article of food, that he will give, in exchange for it, the exhorbitant price of upwards of a hundred pounds a ton; yet so it is, and we would undertake to moderate the surprise, which anyone would naturally exhibit, on first being made acquainted with this fact, could we solicit the honour of his company to dinner to-morrow at the Café de Paris, at Sydney, where he would be presented at twelve o'clock (the usual dinner hour in the colonies), with a dish of soup du Biche de Mer or trepang. We are of opinion he may wander over the whole world, but will never meet with a more dainty dish than that there presented to him. We could, however, on wishing him adieu, plunge him afresh in deep astonishment by assuring him that this marine slug is itself perfectly tasteless, is merely a gelatine, and that it would be to the French cook, and not to the slug that thanks were particularly due.

After tea, Harry having shown the captain the specimens of trepang which he had picked up, inquired from Ru, whether any of the natives understood the process of curing it.

"Yes," said Ru, "new Caledonèe by canoe come, stop for hims," pointing to a basket of trepang on deck, "Captain use natives, and him give guns."

"Oh, that's how they got hold of their muskets, is it?"

"Cook, dry, smoke; that all."

"How long do you boil it?"

"He means," said Bill, interpreting a long speech of Ru's, "that all the knack of curing it lies in the length of time it is allowed to boil. It is spoiled easily enough by being either a little too much or too little boiled."

"Is that right, Harry? You said you knew all about it when we were at Auckland."

"Wery vell, sir, an' so I thought I did till just this minute, ven vilst list'nin to Ru, I thought to myself as how I didn't. Leastways, I never seed it cooked myself, so in course I can't zactly say."

Ru having explained that the fish were sometimes carried alive on a layer of sand sprinkled on the ship's dunnage, to Port le France, when the wind was free, in order to be sold and cured there, Harry muttered aloud.

"That 'ere's the curing process vich I knows, Captain."

"Is it? Well, it's lucky I'm not dependent on you."

He wished them all good night, and retired to his bungalow.

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## THE RULE OF THE ROAD:

### *Pitch of the Screw, right or left-handed.*

SIR,—The late catastrophe in the North Sea reminds us again of the danger of altering the Steering and Sailing Rules, and adds another victim to Rule 14, or "Starboard if you like" in meeting.

In the *Shipping and Mercantile Gazette* a Royal Navy correspondent tells us that both the *Amazon* and *Oneida* were justified in starboarding. No Merchant steam officers of any experience will endorse this, I imagine.

Some seven years since the Board of Trade issued a new order, viz., for sailing vessels in thick weather to use a fog horn, and a bell if at anchor only.

Now as sailing vessels generally keep trying to windward in fogs to hold their own, the old rule was to use the fog horn on the port tack, and a bell on the starboard tack, and this will hold to this day among coasters who consult their own safety rather than obedience to *random* alterations. Quite recently a brig was run over by an Atlantic steamer on the banks of Newfoundland, and yet she had her bell ringing, being on the *starboard* tack.

Some two years ago a Lecture was given at the Sailors' Institute, London, on the "Rule of the Road," by the Poet Laureate, to the Board of Trade. It was unfortunate that there was not a man on the platform, who had ever charge of a screw steamer.

> "*Green to green*, red to red,
> Perfect safety, go ahead,"

Is a rule that is all very well theoretically. But practical men know that "green to green" if nearly ahead requires the greatest caution, particularly when meeting a foreigner.

Then the verses wind up with *go astern*. It appears as if there was not a person among our tormentors that knows that you may *turn* astern from full speed ahead. But your screw steamer will not come out as she went in, as the Nautical Assessors told some unfortunate skipper, whose means of livelihood were taken from him on this false hypothesis!

Suppose a screw steamer steering north at full speed, stops and reverses. She will run a long way, and slue her stern out to about west before coming astern at all; that is, if she has a right-hand screw; for thus the starboard helm is neutralized. Many steamers have left-hand screws for the convenience of going into Liverpool Docks and the Tyne Dock. But there should be uniformity in screw propellers. ALL SHOULD BE RIGHT-HAND SCREWS. For if two of opposite pitch in meeting have to reverse, the chances are they hit each other. "STOP HER" in a screw steamer is much easier said than done. The authorities ought to make some experiments, and see how far a vessel will run with her engines stopped.

For a Maritime country our rulers seem to know very little; and men get blamed for unavoidable accidents. It would be better to describe the pitch of the screw in a steamer pronounced to be at fault, than to tell us she is clinker built as nearly all steamers are.

I consider that the *North Star* had a right-hand screw. If so, it was the captain's *order* to reverse, that sunk the *Leichart*. Had the mate been left in charge he might have taken the jib or flying boom out of her.

Also the unfortunate pilot of the screw steamer *Boston*, who was tried for *manslaughter*, was no doubt thrown into the mischief by reversing a right-hand screw as the Trinity barge was in her starboard bow, and it appears the *Boston's* head went to starboard against her starboard helm.

As several men in charge of steamers do not know a right from a left-hand screw, the following directions may teach them; viz., suppose yourself in a line with the shaft, and holding the upper blade as a lady holds her fan, if the right-hand upper corner recedes, it is a right-hand screw, and *vice versâ*. I should recommend all pilots or officers on taking charge of a strange steamer to ask the question *at once*, is the screw right or left? and much damage might be saved to the country. I am, Sir, your obedient Servant,

ONLY A SKIPPER.

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## THE GIFT LIFE-BOATS OF THE NATIONAL LIFE-BOAT INSTITUTION.

WITH our present number appears a practical account accompanied by illustrations of a Life-boat Station. Indeed so precise is the information it gives that there would be no difficulty in any part of the world (where experienced workmen are located) to form a Life-boat Station by following its clear instructions. Thus then we hope to render another important service to the cause of the shipwrecked sailor in any part of the world.

With this Life-boat sheet before us we may be allowed to add some few remarks on the life-boats that have been presented to the National Life-boat Institution by various benevolent individuals.

About fourteen years past a movement commenced of an altogether novel character in the life-boat work, and which is without precedent in this or any other country. At that period a benevolent lady presented the National Life-boat Institution with the cost of a new life-boat, to be stationed at a part of the coast where one was needed. Another life-boat soon followed from a gentleman. A third was presented by a Yacht club, and a fourth by a lady as a thank offering after a providential preservation from drowning. Rapidly the generous spark was fanned into a flame, and new boats as fast as they were required on the various coasts of the United Kingdom were presented to the Society.

Some of these noble gifts assumed the shape of Memorials to departed relatives or friends, the first of which was given by two surviving sisters in memory of a third, to whom they had bid a last farewell, and the two boats both bear the affecting and affectionate name of *The Sisters' Memorial*. Next came inland towns, some of the inhabitants of which, feeling a desire that their own communities should be represented on the coast as performing their share of the national duty of affording protection to shipwrecked persons, in the only manner in

which they could do so, appealed to their fellow-townsmen, and soon many of such inland places were represented by their own boats; our chief manufacturing towns and cities being conspicuous amongst the number.

Again various public bodies of men, such as the great Mutual Benefit Societies, the Civil Service, the Universities, the Yacht Clubs, Commercial Travellers, Sunday Schools, and the subscribers to public journals, the Society of Friends, etc., and lastly, standing by itself in kind, comes the noble gift of £2000 for the provision and endowment of a life-boat station by a firm of Parsee Merchants, Messrs. Cama and Co., on retiring from business in London, as an acknowledgment or thank offering for their success and in testimony of their appreciation of the kind reception they had uniformly met with from the inhabitants of London.

In this manner it has come to pass, that, as a great and enduring monument of the benevolent feeling and voluntary duty (if we may use such a term) of the people of this country, the grand fleet of splendid and perfectly equipped life-boats which belong to our National Institution now encircles our coasts. That fleet at the present time consists of no less than 220 boats, and of this large number 212 have been special gifts, or as in the case of a very few of them have been adopted by payment of their existing value.

Through the means of this generous support and more than liberal appreciation of the usefulness of our Institution and of the labours of its managing body, the committee conducting its affairs are now in that proud position that they can look on the work they had set themselves to do as complete, so far as placing the life-boats at all, or nearly all suitable and available positions on the coast of the United Kingdom is concerned; and can feel satisfied that it will only, or at least chiefly, now devolve upon them to maintain their existing life-boat establishments in a state of completeness and efficiency.

To enable them to do this, however, they are still reminded that the National Life-boat Institution must continue to be (as it always has been) solely dependent on voluntary support, and therefore they will yet *in the future*, need the encouraging sympathy of the public for their object in the shape of that generous, solid assistance of their fellow-countrymen which has been so cordially granted to them IN THE PAST.

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## ROYAL NATIONAL LIFE-BOAT INSTITUTION.

AT the meeting of the Council on the 5th of May, the minutes of the previous meeting having been read, rewards amounting to £53 6s. were granted to the crews of different life-boats for services on the occasion of shipwrecks on the coast. The Blackpool life-boat had gone out in a fresh gale and heavy sea to the sloop *Sprightly*, of Preston, stranded on the Crusader Bank, and was happily instrumental in

rescuing the crew of two men from their perilous position. The life-boat at Palling, Norfolk, was also launched last week in reply to signals of distress shown during a strong wind by the ketch *Shoreham*, of Shoreham. The vessel, being taken in tow by another ketch, the life-boat accompanied them, and saw them safely into Yarmouth Harbour. The Valentia (county Kerry) life-boat, during an easterly gale, went off to the Skelligs Rock, with the view of bringing ashore four shipwrecked men, who had taken refuge with the lightkeeper. Such was the violence of the sea, however, that it was found totally impracticable, after several trials, to effect a landing on the rock, and the men had to await another opportunity. The Newbiggin life-boat was also launched to the assistance of six fishing cobles in distress off that place during a strong wind from E.N.E. The Berwick life-boat was also the means of saving the crew of five men from the schooner *Margaret*, of Wigton, ashore at Spittal Point in a strong wind and a very heavy sea. This was a service of considerable risk, and a double reward has been granted them by the society. The Barmouth and Arklow life-boats had also gone off in the past month to distressed vessels, but their services were fortunately not ultimately needed. Rewards were also granted to the crews of our shore-boats for saving life from some other wrecks.

The Institution has contributed this year to the rescue of 347 lives from different shipwrecks, in addition to having saved four vessels from destruction. The Society has now a noble fleet of 220 life-boats, and it contributes yearly to the saving of about 1,000 lives. Payments amounting to £2,100 were ordered to be made on various life-boat establishments. Captain Marquand, of the barque *Matchless*, of Guernsey, had collected the additional sum of £2. 5s. in aid of the funds of the Institution. The late John Roberts, Esq., of Jermyn Street, had left it a legacy of £200, and the late Mrs. Mary Greaves, of New Brighton, one of 19 guineas. A new life-boat had just been sent to Kingsgate, Kent, the South-Eastern Railway Company having granted the boat a free conveyance over their line.

The Boulogne Shipwreck Society had, through Colonel Sir James E. Alexander, ordered a life-boat to be built on the Institution's plan by the Messrs. Forrest, of Limehouse.

Reports having been read from Captain J. R. Ward, R.N., the inspector, and Captain D. Robertson, R.N., the assistant-inspector of life-boats to the society, on their recent visit to the coast, the proceedings terminated.

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## THE WORLD'S HIGHWAY.

CHARLES LAMB, in one of his essays, expresses his sense of the grandeur of the ocean; he is impressed with thoughts of its thousand isles, of the vast continents it washes, of its receiving mighty rivers

into its bosom without extra disturbance or sense of augmentation, of dreadful storms, of fatal rocks, of great whirlpools, of sunken ships, and untold treasures in its depths; of fishes and quaint monsters, of coral beds and enchanted isles, of mermaids, sea-serpents, and so on. But even this varied catalogue affords nothing more than confused hints and shadows of the great deep; imagination leads us into bewildering fancies, facts are too numerous to be all taken in, and the only satisfactory result we seem to arrive at after all is that out of our perplexed wonderment is evolved a feeling of awe, and we speak of the sublimity and grandeur of the sea much in the same way as the old lady who had so great a respect for the word "Mesopotamia," probably because it was altogether too much for her understanding.

It would seem, therefore, to be more convenient in thinking or writing about the sea to consider individual points of interest connected with it, and we propose to regard it for a short space as the world's highway, a great road on which mankind travels to and fro all over the world. This point of view brings before us very distinctly the chief value of the ocean to us, and gives us some definite reasons for feelings of admiration or reverence in respect of a wise and beneficent provision for the benefit of mankind.

Various points of resemblance of the sea to a highway suggest themselves. First, there is the watery road itself; then there are numerous vehicles which travel on its surface from place to place, carrying human beings or commodities. Again there are numerous sign-posts, lamp-posts, and other guiding marks set up here, there, and everywhere for the benefit of the traveller; in many places too will be found certain institutions analogous to the obnoxious 'pikes; and lastly, most nations maintain some sort of naval police on the seas adjacent to them to guard property, keep order, and to look after any marine Jack Sheppards or Bill Sykeses who may start up.

We think that some of these points of resemblance are worth a little talking about. Time was, as we all know, when huge tracts of the globe might have been labelled *terra incognita;* and even so recently in the history of the world as just before the discovery of America it was said that "the Atlantic seemed to bound the world with a chaos into which conjecture could not penetrate and enterprise feared to adventure." We can almost imagine in the earliest days of ignorance the sons of Adam standing on the sea shore wondering whether there was an abrupt end of the world where the sky seemed to touch the water, and speculating as to what became of the sun when he disappeared in glory below the horizon. No doubt their hearts burned to traverse the wide waters between themselves and the far off distance so that they might satisfy their wondering minds, but these things were not to be. It seems not to have been intended that the marvels of nature and all the glories of creation should burst suddenly on the astonished gaze of man. This would have been too much for his undeveloped powers. Little by little man learned the elementary laws of nature, still is he learning, and inevitable is the law of progress in the minds of successive generations.

An ingenious compiler of a formidable work on "The Ship" has endeavoured to trace back the origin of ship-building to the first probable natural impulse of man. He may have succeeded to his own satisfaction in elaborating his theories, but after all he can tell us nothing certain, for his theories are only built upon the uncertain foundation of surmise. There is little or no evidence in the oldest writings as to the first attempts of man to trust himself on the sea. Noah's ark is the earliest mentioned instance of anything like a vessel which "went upon the face of the waters," and between that and the somewhat splendid ships of the Egyptians there is no record of the various stages of the growth of ship-building. It is all very well for us to boast of our *Great Easterns* and other big ships, but as far as size is concerned certain Egyptian vessels appear to have been nearly as large as our largest. We may read of one 420 feet long, and of another which accommodated 400 sailors, 4000 rowers, and 3000 soldiers.

The Phœnicians however were the greatest maritime nation that flourished in the early days. It seems from all accounts that they did more for navigation than any one else, and by their very extensive trade, made their city of Tyre the most magnificent place in the world.

As time went on, various nations followed in the track of the Egyptians and Phœnicians, adding fresh experiences to maritime knowledge and gradually bringing the ocean into service as a highway. The Carthaginians were energetic on the sea. We may well think so on reading that, after sustaining a severe naval defeat by the Romans, they sacrificed the gold and silver from the tombs and treasures of the temples, gave up ploughs, scythes, and all sorts of domestic implements to establish a new fleet, and it is even asserted that the whole feminine sex cut off their hair to be twisted into cords and ropes. We do not wish to be invidious, or we might ask if our sisters would be so patriotic as to sacrifice their highly prized *chignons* for the glory of old England. Greece and Rome were of course very great on the sea, and no doubt brought their enlightenment to bear upon navigation with valuable results. Some time after them the Venetians became noted far and wide as a maritime people, and it was in the zenith of their glory that the custom was first instituted of wedding Venice to the sea, "to the end," as the Pope who performed the ceremony then said to the Doge, "that posterity may know that ye have in times past by right of war purchased the entire dominion over the sea, making it subject unto you even as a woman is to her husband." We are inclined to think that either the husband is dead, or the sea being of a rebellious nature has since thrown over its conjugal allegiance. As curious fossils in the formation of the human world we may notice the Chinese, who were probably as advanced in the days of the Phœnicians as they are now. Their junks of the present time are almost identical in shape, with what the Phœnician vessels are represented to have been.

While progress was being made among the nations, there was a class of seamen who infused more spirit into navigation than perhaps

all the nations. In the cold northern seas these bold adventurous men, coming from Scandinavia and other lands of northern Europe, cruised about regardless of the perils of waters, winds, and rocks. Some people call them pirates, others of a more romantic turn of mind call them sea-kings. There seems to have been something of both pirate and sea-king about them; they lived on what they could get, no matter how, but they were brave, daring fellows, fearing and caring for nought. They sailed out in the wide open sea with only the heavenly bodies to guide them, and many wonderful stories could be told of the voyages of these bold northern seamen. There is little doubt that their courage stimulated the more civilized mariners to launch out in the open sea, instead of always hugging the shore.

In later times Spain and Portugal sent out Vasco de Gama round the Cape of Good Hope, Columbus to run against America on his voyage to the East Indies, Magellan to complete the original idea of Columbus, and to sail across the Pacific to Asia. Little by little the nations of the world began to know and to visit each other by means of the great highway. There is no occasion to repeat to English people the story of England's growth as a maritime power. Our reputation is firmly enough established, and every day we are doing good service in developing the great highway, aided by other nations who have grown up with us to be powerful and prosperous in the world.

We have referred to sign-posts, lamp-posts, and other guiding marks set up here, there, and everywhere, for the benefit of the mariner, and we allude to lighthouses, light-ships, beacons, buoys, fog-signals, and all the numerous et cetera which owe their existence to the object of guiding or warning sailors. We have not space to consider their gradual development, but there is no ordinary pleasure in regarding the facts connected with their establishment. Every country in the world sets up these valuable aids to navigation; every nation seems to reciprocate the benevolent feeling of desire to be of service to humanity exposed to the perils of the sea, and innumerable are the means adopted to aid the mariner. Far out on to the dark waters stream the glorious light

> "Not one alone; from each projecting cape
> And perilous reef along the ocean's verge,
> Starts into life a dim gigantic shape
> Holding its lantern o'er the restless surge."

And by the happy influence of these night lamps and day-marks a message of peace and goodwill is borne to all nations of the world.

The institutions analogous to our obnoxious 'pikes are, as civilization advances, gradually disappearing. Tolls and duties are at all times objectionable, but we live in hope that the day will arrive when navigation will be entirely free, and all people of the earth at liberty to wander up and down the world, to travel from place to place on our general highway without let or hindrance.

The Marine Police is represented by the naval forces of different

countries. We are however rejoiced to think that their services as police are very little required in these days. On our highway of the ocean it would seem that on the whole ours is a tolerably well-conducted world. Everybody seems to mind their own business, and no one requires to be told to "move on." As regards this seemingly satisfactory state of things it appears to be unnecessary to say much. At the most we can only congratulate ourselves, and even such a proceeding tends only to encourage vanity, of which we are told that the world itself is composed.

We have said little as to the uses of the highway, but it is a matter the consideration of which should raise navigation and the sea to the highest place in our estimation. Suppose we had never known how to make use of the sea as a highway, the probability is we should still be feeding on acorns, blackberries, hips and haws, and whatever else nature in her uncultivated wildness brings forth in England; unless indeed we had grown so heartily tired of the limited variety of English productions that we had advanced a step and turned cannibals for the sake of a change, and what would our moral and intellectual condition be? Of course we cannot say for certain, but with no light reaching us, how could we be otherwise than hopelessly dark? With nothing to expand the powers of thought, with nothing to educate the mind for a higher state of existence, how could human nature be otherwise than wild and savage? But light has come to us, knowledge has reached us, the word of wisdom is heard amongst us, and all has come to us *via* the great highway.

And as man is brought nearer to man from all parts of the world, the scales of prejudice fall from the eyes, the noblest feelings are discovered working in bosoms hitherto deemed estranged and cold. Sympathies are enlarged, broader and more charitable views of man and things take the place of narrow and mean ideas, and humanity progresses.

Practical benefits follow of the greatest importance. Trade, by which we exchange our productions for the good things of other lands; the disposal of our unsociable criminal class by transportation, and the establishment, as Mr. Wentworth Dilke has expressed it, of a greater Britain on the face of the earth by means of Colonies, are a few of the principal benefits we ourselves derive from the great highway.

It is on this highway that Britannia in these days claims to be of some importance. On certain of our coins of the realm, that good lady is represented as complacently seated by the sea-shore, evidently engaged in her peculiar line of business of "ruling the waves." Our ships are to be met in the remotest parts of the globe, and we are vain enough to think that from our little corner of the world there streams out far and wide across the seas an influence which is felt all over the earth. We are not inclined to dispute the existence of such a state of things, but somehow we are led to reflect on the past. The rapid run through old times which we have made, leaves behind the impression of the rise and fall of mighty nations

which have been great on the sea, we have glimpses of Empires that attained extraordinary heights of civilization and splendour, of which nothing now remains. Their glory was finite, they lived only for the day, and that day is gone by. We Britons may well think of these things, and perhaps moderate the vigour or vanity with which we might be inclined to shout our national chorus, "Britannia rules the waves." Instead of vainly asserting our individual glory in relation to the sea, let us regard the ocean more in the light of a great highway, by means of which all that is purest and noblest in life is transmitted from land to land, and universal good diffused throughout the face of the earth.

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## REDUCTION OF LIGHT DUES.

AT the Court at Windsor, the 18th day of May, 1870, present, the Queen's Most Excellent Majesty in Council.

Whereas by the 397th section of "the Merchant Shipping Act, 1854," it is enacted that her Majesty may, by and with the advice of her Privy Council, from time to time reduce all or any of the dues for the time being payable in respect of existing or future Lighthouses, Buoys, or Beacons for the time being under the management of the General Lighthouse Authorities, and may by the like advice, vary any of such Dues:

And whereas by the 398th section of the same Act it is further enacted, that each of the General Lighthouse Authorities shall have power, with the consent of Her Majesty in Council, to exempt any ships or any classes of ships from the payment of light dues receivable by such authority, and to annex any terms or conditions to such exemptions:

And whereas it has been made to appear to her Majesty that it is reasonable and proper that the reductions, variations, and exemptions hereinafter specified should be made, and take effect from and after the time hereinafter mentioned:—

Now, therefore, her Majesty, by virtue of the power vested in her by the said recited Act, by and with the advice of her Privy Council, is pleased to direct that, on and after the 1st day of October, 1870, the following reductions and variations in and exemptions from the light dues now payable shall take effect; that is to say:—

(1.) The light dues now payable in respect of the *Smalls Light*, off the coast of Pembrokeshire, and in respect of the *Skerries Light*, off the Island of Anglesea, by oversea vessels passing or deriving benefit therefrom (amounting to one penny per ton of the burthen of every such vessel in respect of each of the said lights), shall be reduced to $\frac{1}{8}$d. per ton of the burthen of every such vessel in respect of each of the said lights, subject, however, to the gross abatement or discount of fifty per cent. mentioned in an Order in Council dated the 29th day of February, 1868.

(2.) All vessels trading *to or from Bergen, and ports north thereof*, from and *to Berwick, and ports south thereof* to Seaham (exclusive) (if navigated by the east coast), shall, in lieu of the dues now payable in respect of *North Unst Light* and the lights south thereof, pay dues only in respect of *St. Abb's Head Light*, and the lights south thereof, according to the destination of such vessels.

(3.) All vessels trading to or from ports north of Bergen from and to ports in Great Britain between Seaham and Yarmouth (if navigated by the east coast), shall, in lieu of the dues now payable in respect of the *North Unst Light* and the lights south thereof, pay dues only in respect of *Tynemouth Light*, and the lights south thereof, according to the destination of such vessels.

(4.) All vessels trading to or from the White Sea, or to or from ports between the North Cape and Norden, from or to Yarmouth and ports in Great Britain south thereof (if navigated by the east coast), shall, in lieu of the dues now payable in respect of the *North Unst* or *Tynemouth* or *Spurn* or *Outer Dowsing Lights*, and the lights south thereof, pay dues only in respect of the *Leman and Ower*, *Winterton*, *Haisborough*, and *Newarp Lights*, and the lights south thereof, according to the destination of such vessels.

(5.) All vessels trading to or from the Eider Canal, and ports between the said Canal and Norden, from or to Dover and ports in the United Kingdom to the south and west thereof, shall, in lieu of the dues now payable in respect of the *Outer Dowsing Light*, and the lights south thereof, pay dues only in respect of the *Kentish Knock Light*, and the lights south thereof.

(6.) All vessels trading to or from ports between Norden and Rotterdam from or to Dover, and ports in the United Kingdom to the south and west thereof, shall, in lieu of the dues now payable in respect of the *Winterton Light*, and lights south thereof, pay dues only in respect of the *Kentish Knock* and *North Foreland Lights*, and lights south and west thereof.

(7.) All vessels trading to or from ports between Rotterdam and Antwerp, both inclusive, from or to Dover, and ports in the United Kingdom to the south and west thereof, shall, in lieu of the dues now payable in respect of the *Kentish Knock Light*, and the lights south thereof, pay dues in respect of the *North Foreland Light*, and the lights south thereof.

(8.) All vessels trading between ports in the United Kingdom and ports in Europe (excepting ports in the Mediterranean), shall, in respect of every light passed on the whole voyage out and home, be liable to only one payment of dues for each general passing light.

(9.) All vessels calling for orders at any port in the United Kingdom, and proceeding thence outwards to a foreign port of destination, shall be exempted from payment of light dues in respect of all lights which may be passed, or from which benefit may be derived, on such outward voyage, after leaving the port at which orders were called for.

ARTHUR HELPS.

# Nautical Notices.

## Particulars of Lights Recently Established.

(Continued from page 268.)

| Name. | Place. | Position. | F. or R. | Ht. in Ft. | Dist seen Mls | [Remarks, etc. Bearings Magnetic.] |
|---|---|---|---|---|---|---|
| 37. Buoys S. Ch. of Thames | General | | | | | |
| 38. St. Malo, B. Pt. de Grave | France Gironde | ... ... ... Altered to | ... Fl. | ... | ... | See Notice No. 38. |
| 39. Tarpaulin C. | Masachuset | Altered to | F.fl. | ... | ... | From Fixed: Flash every half min. |
| Macchias Is. | B. of Fundy | Renewed | ... | ... | ... | 57 yards from W. lighthouse. |
| Belize | Altered to | Custom H. | ... | ... | ... | Formerly in Fort George |
| Robinson Pt. Shoal | Extends half a mile | North of it | | | | |
| 40. Pará Light V. | Braganza B. | Replaced | ... | ... | ... | See also shoals, Notice No. 40. |
| Ceara | Pt. Mocuripe | ... ... ... | F. | ... | 5 | Temporary. |
| 41. Local weather Signals | France | ... ... ... | ... | ... | ... | See Notice No. 41. |
| 42. Raschgoun I. | Algeria | 35° 19·8′ N. 1° 28·8′ W. | Fl. | 267 | 22 | Est. 1st April, 1870. |
| Arzeu removed from Fort | | to Jetty. | | | | |
| Rock awash in G. Foz | Coast of France | 43° 21.3′ N. 4° 54·7′ E. | | | | |
| Cape Palinburo | Italy | 40° 1·8′ N. 15° 10′ E. | F. | 675 | 20 | |
| Golden Bank Lights | Azof Sea | Vertical | ... | ... | 12 | Upper 46. |
| | | | | | 11 | Lower 36. |
| 43. R. Thames | Buoys of | N. Channels | ... | ... | ... | See Notice No. 43. |
| 44. Gt. Bassas R. | Hindostan | ... ... ... | ... | ... | ... | Light V. concluded at her station. |
| Anjer Harbr. Lights | altered, on W. Molehead | A red light | ... | 23 | 4 | |
| Koepang, Java | Water from | Aqueduct | | | | |
| Jelaka Isld., Gaspar St. | Macclesfield Channel | ... ... ... | F. | 39 | 8 | Seen from S.W. by S. round S. and E. to N.N.W. |
| Cape Idsu Fire | Japan | ... ... ... | ... | ... | ... | Discontinued. |
| Nosima Point | Yedo Gulf | 34° 53·3′ N. 139° 51·4′ E. | | | | |
| 45. Outer Jade R. Light Ves. | On fore and main mast | ... ... ... | ... | 35 } 51 } | 9 | |
| 46. Cette Port | France | ... ... ... | ... | ... | ... | Est. 1st April, 1870, changed to [*Green* light. |
| Tripoli Harb. | Buoys out | of place | | | | |
| Cape Afia | Algeria | 36° 49′ N. 5° 42·8′ E. | Fl. | 138 | 19 | Est. 1st July, 1870. |
| Cape Ivi | Algeria | 35° 5·3′ N. 0° 13·5′ E. | Fl. | 389 | 20 | Est. June, 1870. |
| Berdiansk Lt. Vessel | Azof Sea | ... ... ... | ... | ... | ... | Discontinued. |
| 47. England, E. Coast | Buoys | ... ... ... | ... | ... | ... | See Notice No. 47. |
| 48. Ship Harbour | Gut of Canso | 45° 36·7′ N. 61° 72′ W. | F. | 44 | 7 | Est. 15th April, 1870: From the North seen 3 miles. |
| 49. Humber | England | ... ... ... | ... | ... | ... | Intended. |
| Maplin Spit B. | England | Changed | ... | ... | ... | See Notice No. 49. |
| 50. Telegraph Sh. | E. Chan. En. | ... ... ... | ... | ... | ... | See Notice No. 50. |
| 51. Inner Eider Lt. Vessel | North Sea | 54° 15·5′ N. 8° 34·8′ E. | ... | ... | ... | See Notice No. 51. |
| 52. Jouriman Id. | Northumberland St. | 46° 10′ N. 63° 50′ W. | F. | 72 | 14 | Est. 15th May, 1870. |
| Santa Marta | West Indies | Morro Id. | F. | 328 | 24 | Est. 1870. |
| 53. Cardiff Gds., Mid. Buoy | Bristol Ch. | ... ... ... | ... | ... | ... | See Notice No. 53. |
| 54. Rhio and Banca St. | Buoys | Java Sea | ... | ... | ... | See Notice No. 54. |
| 55. Rattlesnake Shoals Lt. | Charleston | Replaced | ... | ... | ... | 1st May, 1870: See Notice No. 55 |
| Charleston Bar | U. States | ... ... ... | ... | ... | ... | See Notice No. 55. |
| 56. | | | | | | |
| 57. Eastern Archipelago | Buoys and Shoals | ... ... ... | ... | ... | ... | See Notice No. 57. |
| 58. Irish Channel Buoys | ... ... ... | ... ... ... | ... | ... | ... | See Notice No. 58. |
| 59. Gt. Bassas Lt. | Hindostan | ... ... ... | R. | ... | ... | *Red.* See Notice No. 59. |
| 60. About Yarmouth | Buoys | ... ... ... | ... | ... | ... | See Notice No. 60. |

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

No. 38.—FRANCE, WEST COAST.—*Buoys and Beacons, St. Malo.*—The French Government has given the following Notice:—

*Rochefort.*—A tower of masonry, summit 13 feet above high water, stands on Rochefort rock; painted in *horizontal bands of black and red*, and surmounted by a ball.

*Buron.*—A tower of masonry, the top 4 feet above high water, stands on Buron rock; painted *red* and surmounted by a ball.

*Pierres des Portes.*—A tower unfinished on the Pierres des Portes; is now 16 feet above the rock, and 18 feet above high water.

*Boujaron.*—A tower unfinished on Boujaron rock; is now 6 feet above the rock. The following buoys have also been placed, on the

*Bouton.*—A *black and red* buoy.

*Couillons de la Porte.*—A *black* buoy.

*La Basse du Boujaron.*—A *red* buoy.

No. 40.—*An Island at the Entrance of Para River*, about 2 miles in circumference, has grown on the Coroa Gaivotas bank, east side of the entrance of Para river. It is covered with trees.

*A Shoal Patch at Entrance of Para River* of 3½ fathoms N.E. by N. from the Braganza bank light vessel extends a considerable distance, requiring care in navigating near it.

*A Shoal near Maranham* to the north-east of Cabello da Velha bay, is in lat. 1° 33′ S., long. 44° 35′ W., on which the steamer *Ambrose* struck.

No. 41.—The French Government has given Notice, that the following local weather signals have been adopted at the principal ports and shipping places on the Coasts of France, in addition to the established storm warnings.

1.—A flag, of any colour, indicates weather doubtful, barometer inclined to fall.

2.—A short pendant (Cornet) indicates appearance of bad weather, heavy sea, barometer falling.

3.—A pendant indicates appearance of better weather, barometer rising.

4.—A ball above Cornet indicates the entrance of the port has become dangerous, be careful.

5.—A ball below Cornet indicates the life-boat is coming out.

No. 49.—THAMES ENTRANCE.—*Alteration of Maplin Spit Buoy.*—The Maplin sand having extended in a southerly direction from the lighthouse, the Maplin Spit buoy has been moved one cable to the southward, and has been changed from a can to a *conical* buoy *with staff and globe.*

Now lying in 15 fathoms at low water springs with the Maplin lighthouse N.E. $\frac{4}{10}$ of a mile and Maplin buoy W. ½ S. $1\frac{9}{10}$ miles.

As Maplin spit has become dangerous, mariners are cautioned to give the lighthouse a wide berth in passing.

*(All Bearings are Magnetic. Variation* 19½° *Westerly in* 1870.*)*

No. 50.—ENGLISH CHANNEL, ENTRANCE.—*Telegraph Ship.*—With reference to Notice to Mariners No. 10, dated 21st January, 1870, respecting the establishment of a Telegraphic Station Vessel, by the International Mid-channel Telegraph Company, off the entrance to the English Channel:—

Notice is hereby given, that the ship (*Brisk*) is now moored in position

on the Admiralty Patch in latitude 49° 20′ 30″ N., longitude 6° 17′ West of Greenwich.

From the Telegraph ship—Bishop Rock lighthouse bears N. by E., distant 33 miles; Wolf Rock, N.E. ½ E., 40 miles; Land's End, N.E. ½ E., 49 miles; Lizard, E. by N. ½ N., 56 miles; Ushant lighthouse, S. by E. ¾ E., 70 miles.

The vessel is painted black, with the words *Telegraph Ship* in white letters on her sides; she has three masts and at the top of the mainmast a large black cone will be hoisted during the day time, and a powerful globular light at night, elevated 30 feet above the sea, which in clear weather should be seen from a distance of 6 miles.

A naked light will also be shown every 15 minutes during the night from an hour after sunset to an hour before sunrise.

During foggy weather, day or night, a bell will be rung continuously for half a minute every quarter of an hour, and until the 1st of October, 1870, a gun will be fired every quarter of an hour, and after that date, every hour.

The Commercial code of Signals for the use of all Nations, will be used on board, to the exclusion of all other codes, and none other can be noticed.

*(All Bearings are Magnetic. Variation 23° Westerly in 1870.)*

No. 51.—*Alteration in position of Inner Eider light vessel.*—The light and pilot vessel at the mouth of the Eider river has been moved to a new position, inside the bar, and is now moored in 2 fathoms with the following bearings, viz.:—

St. Peter's Church, N.E. ¾ E.; Blauort Beacon, S.S.E. ½ E. Position, latitude 54° 15′ 30″, longitude 8° 34′ 48″ East from Greenwich.

Also, that outside the bar, in line with the black buoys, a *red conical* buoy *with staff and two balls* has been moored in 3 fathoms at low water, in latitude 54° 15′ 31″ N., longitude 8° 32′ 24″ E., with the light-vessel bearing E. by S. ¾ S.

*Directions.*—To cross the bar when entering the river, vessels should steer for the Eider light-vessel on an E.S.E. course.

The depth on the bar at low water is one fathom.

The outer light-vessel has been moored in her former position.

No. 53.—*Alteration in Position of Cardiff Grounds, Middle buoy.*—Cardiff grounds having extended in a southerly direction, and having washed away on the western side, the Middle Cardiff buoy has been moved one cable to the south-eastward, and now lies in 4 fathoms at low water springs, with the following marks and bearings, viz.:—

West end of Flatholm island (at high water) in line with West end of Steepholm island, S. by W.; Cardiff Hook buoy, N.E. ¾ E. 1$\frac{5}{10}$ miles.

*(All Bearings are Magnetic. Variation 22½° Westerly in 1870.)*

No. 54.—*Beacon and Buoys, Rhio and Banka Straits.*—The Netherlands Government has given Notice, that the following buoys and beacons have been established in Rhio and Banka straits.

Rhio Strait.—*Tanjong Pinang Beacon.*—A white square pyramid 162 feet high, N. by W., 2½ cables from Tanjong Pinang.

*Pas-op (Little Pan) Reef.*—A *black* buoy *with white ring*, in 3 fathoms, at the northern extremity of Pas-op, or Little Pan reef, north entrance of Rhio strait, with Pan reef beacon bearing S.E. by E., and Boerong point W. by N.

*Pan Reef.*—A *black* buoy *with white ring*, in 8 fathoms, on the south-west point of the Pan reef, with Sau light bearing South, and Pan beacon N.E.

*Malang Orang Reef.*—A *black* buoy *with white ring*, on the eastern edge of Malang Orang reef, in 9 fathoms, with Pan beacon bearing N.E. $\frac{1}{4}$ E.

*Innang Reef.*—A *white* buoy *with black ring*, in $5\frac{1}{4}$ fathoms, on eastern point of Innang reef, with south point of Pulo Loban bearing E. by S. $\frac{1}{4}$ S., Sau light N. $\frac{1}{2}$ W., and south point of Palo Innang W. $\frac{1}{2}$ S.

*Isabella Shoal.*—A *white* buoy *with black ring*, in 3 fathoms on the western extreme of Isabella shoal, with east point of Pulo Loban bearing N.N.E. $\frac{1}{2}$ E., Terkolei light East, and south point of Little Loban N.W.

A *black* buoy *with white ring* in 3 fathoms, on the eastern extremity of the shoal, 3 cables E. $\frac{3}{4}$ S. from the west buoy.

*Tiemara Bank.*—A *black* buoy *with white ring*, on the eastern side of the Tiemara bank, in 3 fathoms, with N.E. point of Tiemara bearing N.W. by W., and east point of Pulo Loban N.N.E.

*Terkolei.*—A *black* buoy *with white ring* on edge of shoal between Pitjingit and Pulo Loban in $2\frac{1}{2}$ fathoms, with Pitjingit bearing E. by S. and Terkolei, North.

*Soré Reef.*—A *white* buoy *with black ring* on north-west end of Soré reefs, in $2\frac{1}{2}$ fathoms, with Pitjingit bearing E. by N. $\frac{1}{2}$ N., and Terkolei light N. by W. $\frac{3}{4}$ W.

*Dompa Point.*—A *white* buoy *with black ring* on reef off Dompa point, in 3 fathoms, with Dompa point bearing N.N.E. $\frac{1}{2}$ E., west end of Basing island S.E. $\frac{1}{4}$ S., and centre of Soré island W.S.W.

*Rupels Reef.*—A *black* buoy *with white ring* on the east side of Rupels reef, in 5 fathoms, with east point of Soré bearing N. by E., Pankel, N.W. point, N.W. $\frac{1}{2}$ W., and Pankel, S.E. point, S.W. by W.

*Rotterdam Reef.*—A *white* buoy *with black ring*, in $2\frac{3}{4}$ fathoms, on the west side of Rotterdam reef, with south point of Pankel bearing N.W. by W. $\frac{1}{2}$ W., and Topie island centre E. by N. $\frac{1}{4}$ N.

*Aligator Reef.*—A *white* buoy *with black ring* on north-west edge of Aligator reef, in 4 fathoms, with west point of Aligator island bearing S. $\frac{1}{2}$ E., Topie island, south point, W. by S. $\frac{1}{2}$ S., and Blading island N. by E.

BANKA STRAIT.—*Frederick Hendrick Reef.*—A *red* buoy on the south point of Frederick Hendrick reef, north entrance of Banka strait, in 5 fathoms, with Kalean light bearing S.E. by E. $\frac{1}{2}$ E., Bersiap hill E. by S., and Mount Parrée N.E. by E.

*(All Bearings are Magnetic. Variation $1\frac{1}{2}°$ Easterly in 1870.)*

No. 55.—*Re-establishment of Rattlesnake Shoals Light-vessel, Charleston Harbour.*—The United States Government has given Notice, that from the 1st day of May, 1870, the Rattlesnake shoals light-vessel would be replaced in her former position, with east end of Rattlesnake shoals bearing N. by W., Fort Sumter W. $\frac{3}{4}$ N., and north end of Sullivan's island N.W. by W. $\frac{1}{2}$ W.

*Beacon Lights for Charleston Bar.*—Also, that from the same date, two beacon lights would be exhibited from lighthouses recently erected on Morris island, which kept in line will lead over the bar into Main Ship channel.

The east light is a *fixed* white light, exhibited from a wooden tower 15 feet high, painted red.

The west light, W. by N. ½ N. from the east light, is a *fixed red* light, exhibited from a wooden tower 35 feet high, painted black.

*Directions.*—To cross the bar, keep both lights in one bearing W. by N. ½ N. until Weehawken light-vessel bears north, when steer for and pass her on the port hand.

*(All Bearings are Magnetic. Variation 2° Easterly in 1870.)*

No. 57.—*Rock, North Entrance Gaspar Strait.*—The ship *Pare Jois* struck on a sunken rock north of Gaspar island, Gaspar strait, the island peak bearing S. ½ E. distant 5 miles.

*Baly Strait.*—A *black* buoy *with white ring* has been moored in 4 fathoms on Pakem reef, south of Banjoewangie roads, with the highest Bakungan mountain bearing E. by N. ½ N., and Fort Utrecht N.N.W. ½ W.

CARIMATA STRAIT.—*Reef between Pesemot and Nangka.*—The Dutch barque *Luctor and Emergo* touched on an unknown reef between Pesemot and Nangka, Montaran islands. From it Nangka island bore west, Pesemot island, E. ¾ N., and the westernmost of the Middle group, S. by E.

MACASSAR STRAIT.—*Buoy on Tanna Keke Reef.*—A *black* buoy has been placed in 4¾ fathoms on the N.E. edge of the reef from Tanna Keke (south of Macassar) and a *white* buoy in 4 fathoms on the western edge of the shoal from the coast of Celebes opposite.

There is a safe passage through Tanna Keke strait between these two buoys.

*Buoy on Hoofd Reef, Macassar Road.*—A *black* buoy has been moored in 2 fathoms on the Hoofd reef, Macassar road, with the beacon bearing E. by N., and the lighthouse S.S.E. ¾ E.

*(All Bearings are Magnetic. Variation 1° Easterly in 1870.)*

No. 59.—The light-vessel has been placed in her position, in 12 fathoms N.N.E., three quarters of a mile from the Great Bassas rocks.

The light (in order to distinguish it from that of the Little Bassas 20 miles distant, which shows a white flash every one and a half minutes) is called a *revolving red* light, attaining its greatest brilliancy *every forty-five seconds.* But it does not seem that the light is eclipsed, implying an interval of darkness as was formerly the case with the revolving light.

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## INDIAN OCEAN.—CEYLON, SOUTH COAST.

WINDS and currents at the Little Bassas Rock off the south coast of Ceylon, from information dated April, 1869, by Mr. John Buchanan, Master of the light-ship there.

*January.*—Throughout this month a strong, steady north-east monsoon prevails. The current sets constantly to S.S.W. from the Bay of Bengal varying from 2 to 3½ knots per hour with a rough cross sea. Steam vessels steering N.N.E. have been thus seen from the light-vessel for two hours, and sailing ships for six days. Hence vessels bound N.E. should avoid the S.E. coast of Ceylon in January.

*February.*—The same remarks apply to February, but about the end of the month the wind is less, and the current slackens. Occasionally now the light-ship swings. In 1868 she did not swing until April, but in 1869 she swung in February. At the end of the month land and sea breezes begin.

*March.*—Throughout this month regular land and sea breezes prevail. The S.S.W. current varying sometimes, setting from different quarters, one hour setting in one direction, and in another probably to the opposite. March is one of the finest months at the Little Bassas, the thermometer often reaching 87° in the shade. Land and sea breezes being regular, and the current weak, the passage up or down the coast is easy in this month.

*April.*—Winds are variable, being sometimes from N.E., at others from S.W., blowing from the latter for several days. Sometimes in the course of a day the light-vessel's head will be at almost every point of the compass. Weather becomes gloomy, showers occasionally, thunder and lightning prevalent, with dense blackness over the land. As a rule very little current is felt, but it occasionally sets to the S.S.W.

*May.*—Between the 1st and 20th of this month the S.W. monsoon sets in strong and steady, much rain falls generally, thunder and lightning are common. For seven years the S.W. monsoon set in regularly from the 4th to the 10th of May. In 1869 it was steady at S.W. from April 6th; 1869 is accordingly an exception to the rule as to winds and currents. After May no rain falls until the 20th of October; and it is scarcely an exaggeration to say that not a drop of rain falls during the S.W. monsoon. The current sets N.E. from one to 3 knots.

*June, July, August,* and *September.*—Throughout these four months the weather is the same: a strong and steady S.W. monsoon commences about 10 a.m., by noon increases to a gale until 4 p.m., then slackens towards sunset; if the gale continues after sunset it moderates at about 10 p.m., throughout the night being only a strong breeze. A strong current sets N.N.E. from one to 3 knots. As soon as the sun passes southward of the line, the regular monsoon ceases on the south coast of Ceylon, the wind is then variable, land and sea breezes setting in, with intervening calms.

A remarkable variation attends the current during the S.W. monsoon. After setting at a rate of 3 knots to the N.E. for ten days, suddenly it slackens, and sets from 2 to 3½ knots S.W. from the Bay, sometimes for a day, at other times for a week. These changes happen at all times of the moon, and appear to obey no recognized law. By observing these changes in the current, monthly communication (with extreme difficulty and much risk) has been kept up with Potana Bay, and thence by land with Galle.

*October.*—During this month regular land and sea breezes prevail, the S.S.W. current is strong towards the end of the month, at times attaining a rate of 5 knots. The light-vessel does not swing again until the middle of March, so that for five months and a half the current sets steadily out of the Bay of Bengal at a rate of from one to 3½ knots, and sometimes of 5 knots per hour. In communicating with the shore on the 15th December, the light-ship's boat was swept past Potana, and could neither return to the ship nor land. At length, when out of food and water, she beached at Kirinde, remaining there until February 15th, before a return to the ship could be attempted.

*November*, although rainy with thunder and lightning, is not a bad month at the Little Bassas. The N.E. monsoon blowing strong and steady sets in towards the end. The S.S.W. current runs strong, invariably taking floating substances out to sea, accounting for the fact of so little drifting ashore on the south coast of Ceylon.

*December*.—During this month a strong N.E. monsoon prevails, and the current attains its greatest strength. The light-ship is uneasy and rolls violently. In December no ship should proceed to the northward along the S.E. coast of Ceylon. The time for ships to proceed north is that between February 15th and November 15th; for the remaining three months of the year it should not be attempted.

*Summary*.—There are no regular tides, but the currents from the middle of November, or during the N.E. monsoon, set S.S.W. out of the Bay of Bengal for five months without variation. Thus a steamer, steering N.N.E., has not only to oppose a 3-knot current, but also has the wind dead against her; in which some steamers scarcely make two miles an hour when bound to the northward. During the remaining seven months the currents are nearly equally divided. For about twice a month in the S.W. monsoon the current will suddenly change from N.N.E. to S.S.W. When the sun passes northward of the light-ship, there is no more N.E. monsoon. During the S.W. monsoon, in the event of a vessel making Dondra Head, when bound to Galle (which is not uncommon), the master should never attempt to beat to Galle, but should always recross the line.

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## On the Masting of Iron Ships, Twin Screws and Balanced Rudders.

In the journal of the Society of Arts for April 29th, we read of a discussion on the "Masting of Iron Ships," etc. So many well known men of science join in it that one must be cautious in criticising their opinions.

Mr. Symington complains of the manner in which the rigging of a first class Liverpool ship is set up; and speaks disparagingly of a set of riggers, who have no superiors in this or any other country. In the days of the celebrated American packet ships, the Americans invariably sent them to Liverpool to be rigged, and the experience of thirty years did not make them alter their views. I can add, from experience that the rigging of the present class of ocean steamers is turned out of hand in the most workmanlike style. As a rule the laniard is treated as he describes, and is hove up with a steam winch or capstan almost to the breaking strain. On some occasions this causes mischief, as cold contracts the wire rope up to a certain point. So conscious was the manager of the Cunard line of steamers of this defect, that he forbade the introduction of wire rigging; and I am not sure that he has yet adopted it. This differs very much from Mr. Symington's description of the state of the rigging on going to sea.

I am of opinion that the position of the shrouds and backstays is

often faulty; so much so, that half the weight of rope, properly placed would be more effective. Frequently however, this defect cannot be avoided, as hatchways, funnels, etc., will interfere with the placing of the chain plates.

In speaking of the undue breaking of iron masts, all who took part in the discussion made one great omission, viz., the quality of the iron was not criticised. We know too well, that unprincipled builders put brittle plates in hull and masts. The author of these lines has seen well built iron masts, with all their top hamper aloft, standing throughout a furious storm uninjured, although the rigging was so slack that it never took any strain, even with a roll of 30° each way. I maintain that all ships, with three decks should wedge their masts on the two lower ones. To me the reason is obvious. Every mast subjects the hull to a certain amount of pressure and tension, and the more equally this is divided the less the ship is strained. By lowering the fulcrum, the strain on the lower deck ties is increased to an enormous extent, especially if the rigging be slack and the ship rolling heavily. The momentum is also to be considered, and even Mr. Symington must admit that in a lofty mast, it would attain under such circumstances, a dangerous amount of power. I can see no possible reason for adopting his plan, but everything against it. I may be excused for adding that the most scientific engineers are often at fault, when considering the peculiar strains to which a ship is liable; so much so that many arrangements, which answer perfectly well on shore, utterly fail on shipboard. How many are there who will believe that double keys are absolutely necessary for securing the tiller properly on the rudder head, although on an engine shaft it is almost unknown.

On some points Mr. Symington is rather indistinct: for example, he says, a five inch wire rope will stretch one foot in a hundred and still retain its original strength. From my own experience I cannot confirm the statement, as I have never found large wire rigging stretch so much without fracture. I must add that excepting from collision, I have never seen a shroud break. No man who has the slightest knowledge of the strains to which a ship is subjected, would propose to make the mast a mere derrick, or to build it solid enough to stand without shrouds. Both plans are so bad that there is not the slightest chance of their being adopted, either in the Royal Navy or Merchant Service.

Mr. Lamport remarks, that main yards are frequently carried away because the strain is not equally divided between the braces. How this can be accomplished unless the wind be aft, I cannot comprehend; for we all know that when it veers to the quarter or beam the lee brace cannot in the slightest degree, support the yard, although it steadies it. A main yard is often sprung by the lee brace getting foul in stays, or in starting the main tack with a jerk. Since the introduction of snap-headed rivets these accidents have become rare. One fastened with countersunk rivets will be always liable to fracture.

Sir John Hay was quite right in stating that iron bolts might be most advantagously used for the fastenings of teak built ships. In

India I have seen such perfectly good after the lapse of a century. The method pursued is the following. The bolt is countersunk two inches and the hole filled up with fine chunam. When this is carefully executed the action of the copper sheathing is completely neutralised.

I have never seen the clenches of copper bolts crystalized, although I have superintended the breaking up of two of the oldest ships in the English navy. I think it possible that such deterioration must be caused by the nature of the cargoes carried, and not from the action of the acid in the wood.

I have only one objection to the use of metal screws for fastenings, and that is the difficulty of getting them out if repairs are required. A bolt is drifted out without much trouble, but a screw cannot be extracted so easily, as the copper is too soft to stand the action of the screw-driver, and drifting is out of the question.

It is to be hoped that we have seen the last of *twin screws* and *balanced rudders* for sea going ships, as the action of both is so capricious that one never feels satisfied with their performance. From the comparatively small immersion of the twin screws, their action in a seaway is always unequal, so much so, that it is only with the greatest care and attention that the ship is kept on her course. To use a nautical expression, she never feels her helm, but swings off in the most erratic manner. Sometimes a large amount of helm is given without any effect. Suddenly, then, the ship takes a start and before the helmsman can meet her the course has been passed and opposite helm required.

*Balanced rudders*, as they are now applied, form a most fragile fitting, one quite unsuited for the shallows of the North or Baltic seas. There are few who saw the keel of Her Majesty's ship *Tamar*, after her accident on the coast of Anticosti, who did not remark that a balanced rudder would under similar circumstances have caused the loss of the ship and all hands.

We know not when English men-of-war may have to cruize and fight in such dangerous seas; therefore, those who wield the destiny of this great empire should look well into the machinery which guides and propels her ships. Amidst such conflicting opinion as there are extant, it is hard for the unprofessional man to get a clear idea of the truth. Yet to me the above fittings appear to be dangerous and untrustworthy for general service, however admirable they may be in theory. Where masts are not used the twin screw is applicable, but I have always doubted its efficiency in a heavy sea, and the opinions of many able men entirely coincide with my own.

ALBERT.

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## MONTHLY REVIEW OF SOME NAUTICAL MATTERS.

OF the various subjects which monthly fall under our notice for preserving in these pages, the decision of the Board of Trade on the

collision between the Peninsular and Oriental steamer *Bombay* and the American sloop of war *Oneida*, being of the most importance, we give it preference here. This report says :—

"Official correspondence respecting the collision between the *Bombay* and *Oneida* has been presented to Parliament. It will be recollected that the Court at Yokohama held that no blame attached to Captain Eyre for the collision, but that his conduct afterwards constituted a breach of the Merchant Shipping Act, and for that he was punished by a suspension for six months of his certificate. Captain Eyre, in a memorial addressed to the Board of Trade on the 25th of April, asks that this sentence may be reviewed on the ground of its being both unjust and severe, and that his certificate may be returned to him. This memorial was supported by the directors of the Peninsular and Oriental Company, who say that they 'have had the report of the proceedings at the Court of Inquiry under their serious consideration, and they cannot but feel that the decision arrived at by the Court on the conduct of Captain Eyre after the collision was not warranted by the evidence laid before it.'

"In reply, the Board state under date May 5th, 'that in their opinion the sentence of six months' suspension, so far from being too severe, is too lenient a punishment for the offence which Captain Eyre has committed.'" The following report on the whole case has been sent from the Board of Trade to the Foreign office :—"Lord Clarendon will observe that the statutory duty imposed on the Board of Trade under the circumstances, is that of reviewing the sentence passed by the Naval Court upon Captain Eyre for a breach of the 33rd section of the 'Merchant Shipping Act Amendment Act 1862.' From the enclosed copies of the replies which the Board have made to the applications of the Peninsular and Oriental Company, and of Mr. Eyre, Lord Clarendon will see that in the performance of this duty the Board have expressed their opinion that, not only is the conclusion of the Court concerning Captain Eyre's conduct after the collision justified by the evidence, but that the sentence of six months' suspension pronounced by the Court is inadequate to the gravity of the offence. Lord Clarendon will also see that the Board of Trade entertain a very strong opinion concerning the obligation upon masters of ships which have come into collision to stand by and render assistance to each other. And they have expressed in no measured terms their condemnation of conduct such as that of which Captain Eyre has been found guilty. At the same time they think it important to remark that such conduct was for the first time made punishable in this country by the Act to which I have referred. And so far as they are aware, no other maritime nation have any law by which such an offence, if committed by the captain of one of their own ships, could be punished at all.

"Looking, therefore, to the matter in an international point of view, it appears that British law compels the performance by masters of British ships of the duties in question, whether towards British or foreign ships, by means of a sanction which no other nation enforces against its own shipmasters. The Board of Trade have not power to

reopen an inquiry which has been terminated by the decision of a naval court, except for the purpose of mitigating any sentence which the naval court may pronounce, nor would it be within the scope of their functions as a department of Government to take civil proceedings against the *Bombay* or her owners on behalf of the sufferers by the collision. The only proceeding which it would be possible for her Majesty's Government to institute in any such case would be a criminal proceeding against the master or crew of the ship causing the collision for culpable negligence or misconduct leading to loss of life.

"Such a proceeding, however, being penal, must be supported by distinct and conclusive evidence; and the Board of Trade would not be justified in attempting such a proceeding in the present case, unless reasonably satisfied that it could be proved that the collision in question was due to culpable negligence or misconduct on the part of the captain or crew of the *Bombay*. Upon this point, however, the decision of the Naval Court is entirely favourable to the *Bombay;* and the Board of Trade, as at present advised, see no reason for thinking that decision wrong. *Prima facie* there appears to be every reason for placing confidence in the decision of the Naval Court; but the Board of Trade, not content with this, have obtained the best professional opinions in their power (from professional officers connected with the Board of Trade and the Admiralty) upon the evidence submitted to the Naval Court, and they are advised that the decision of the court as regards the cause of collision is borne out by that evidence. Under these circumstances, the Board of Trade would not be justified, having regard to the evidence now before them, in initiating criminal proceedings against Captain Eyre.

"On the other hand, it appears by the report of Secretary Robeson to Congress, that the Navy Department of the United States are of opinion that no blame is to be attached to the officers of the *Oneida* for the collision, and that the disaster occurred through the bad navigation of the *Bombay*. Assuming the United States Government to adopt this opinion, it is open to them, or to those who have suffered loss, by the deaths of their relatives, or otherwise, to raise the question by a suit for damages against the owners of the *Bombay*. In such a suit the issue would be raised in the form most favourable to the *Oneida;* and the civil courts which would try the case would be in no degree bound by the decision of the Naval Court at Kanagawa. It is scarcely necessary that the Board of Trade should express their deep sympathy with the sufferers, and their regret that a British merchant ship should have been the cause, innocent or otherwise, of such a calamity; or their still deeper regret that the master of a British ship should have neglected to assist those whose lives the collision had endangered.

(Signed) "G. SHAW LEFEVRE."

On this same subject the following has also appeared in our papers. According to the New York papers, the printed report of the inquiry made by the United States naval court at Yokohama into the loss of

the *Oneida*, by collision with the *Bombay*, has been received at Washington. The finding is that the accident was entirely due to the latter vessel. With regard to what followed, the report says:—"The *Bombay*, in not communicating with the *Oneida*; in disregarding the loud hails of the executive officers of the *Oneida*; in disregarding the signal of her steam whistle, which was kept blowing until the *Oneida* sank; and finally in not hearing, or if she heard, in not replying to the three or four heavy signal guns fired from the *Oneida*, although they were distinctly heard in Yokohama, at a distance of over nine miles, is so guilty and blameable, that this Court can only speak of it as unparalleled in cruelty."

The Suez Canal next occupies our attention, and we fully agree in the following remarks on the passage of H.M.S. *Jumna* through it with above 1200 persons on board. "The news of the safe passage of the *Jumna* troop-ship from Suez to Port Said is one of the best testimonials yet paid to the Suez Canal; and will give pleasure to thousands of brave fellows in India to whom, if invalided, a voyage home round the Cape has been a thing to dread. When the *Great Eastern* was lying in Bombay Harbour in February last the *Jumna* was there too, and the native boatmen made it a point of honour to row the strangers they had contracted to take to 'the big ship,' alongside the latter. The *Jumna* was anchored a few hundred yards from the pier, the *Great Eastern* at two miles distance, and there had been, for obvious reasons, a wilful misunderstanding, when 'the big ship' was mentioned and the bargain struck. But H.M S. *Jumna* was 'the big ship' by the side of the five hundred fine vessels waiting their freights at Bombay, with the solitary exception of the *Great Eastern*, and on her passage through the Canal she must have resembled a floating castle, by reason of her immense height, her countless portholes, and her tiers of decks. We assume her to have been lightened for the sake of convenience, and that the hundreds of soldiers she houses upon occasion were absent for the time. But the logical sequence to a troop-ship going through the Canal empty is, that it should go through it full, and thus open out a great field of usefulness. The disembarkation at Alexandria, and the railway journey to Suez, combined with the restrictions as to the number of hours during which foreign soldiers should remain in Egypt, have long been a nuisance to officers and men making the overland journey to India. To be able to ship our troops in England and land them at Bombay without intermediate stoppage, would be a saving to the country and a boon to all concerned. The arrival of the *Jumna* at Port Said seems the first step to its accomplishment."

According to a Sydney paper, our Australian friends are on the look out for great advantages from this passage. They say that the effect which the opening of the Suez Canal appears destined to exercise upon the development of commercial intercourse between Australia and Europe may be inferred from the fact that one or two steam vessels are being chartered to proceed direct to Japan, India, and China by

the new route, and the success of these is certain to prepare the way for extended steam communication to the antipodes. In the meantime the Germans are talking of forming a German-Australian line of packets.

The French are also broaching a scheme in the same direction. Even the Prussians assert that the commercial intercourse about to be opened up between Odessa and India will ultimately become extended to Sydney and Melbourne. The colonies of Australasia have certainly a grand industrial prospect before them.

But before the new route can be rendered available to the extent wished, more light-houses are required for the Red Sea, although the navigation of that body of water is less dangerous than commonly supposed, the loss of the *Carnatic* being traceable not to any real existing danger, such as sunken rocks, unknown currents, and the like, but to the negligence of the captain. With ordinary care and knowledge of the Red Sea the route to India and Australia is as safe as it is expeditious.

A report on the Suez Canal by Captain Richards, the Hydrographer to the Admiralty, and Lieutenant-Colonel Clarke, Director of Engineering and Architectural Works, has lately been issued. The conclusions drawn are that the Canal is a convenient means of transit, and will become more so when improved; that it is not suitable for very large iron-clads, and that the cost of maintenance will not exceed the original estimate.

*Loss of Steamers at Sea.*—We occasionally get some information from our Parliamentary proceedings, and here is some interesting matter, which fell from the lips of the worthy members mentioned, but with no immediate effect, and on we are to go as usual, and repeat the same losses year after year. Great pity it is that shipowners are not obliged to go to sea in their own ships. The losses would then be few and far between.

Sir J. PAKINGTON rose to move an address to the Crown, praying that her Majesty would be pleased to issue a commission to inquire into the cause of the great loss of life and property at sea during the last few years, and to consider whether any and what changes can be made in existing laws and regulations with respect to collisions, overlading, stowage of cargo, and other matters, with the view of giving increased safety to passengers and merchant ships. He brought forward the motion under the advantage that it was no party question, but, on the other hand, he laboured under the disadvantage that the head of the Board of Trade was not in the House to discuss it. In saying this he meant no disparagement to the able secretary of that board, but he could not shut his eyes to the fact that there was no responsible member of the Government to promise to look into the matter. He had some time since asked a question relative to the loss of the *City of Boston*, and since that time he had been inundated with letters from all parts of the country beseeching him to call the attention of Parliament to the present system of overloading steamers,

which annually caused such terrible losses of life and property. He had now been urged to do so by the Institute of British Naval Architects, and, thus urged, he had felt it his duty to bring forward the subject in his place in Parliament. He held in his hand a statement, by which it appeared that twenty-eight steamers were lost between the 1st of July last year and the 1st of November, being a period of only four months.

Ranging over longer periods he found the average to be six ships a month, or one and a half ships a week. Further than this, Mr. Stephenson, of Lloyd's, had informed him that sixteen Baltic steamers were lost last year between the 2nd September and the 17th November. In 1868, sixteen Baltic steamers in all were lost, and in 1869, eighteen. By comparing 1858 with 1868, the House would see that in the former year we had 25,000 sailing vessels and 1,900 steamers; and in the latter, 27,000 sailing ships and 3,000 steamers, being an increase of somewhat less than eight per cent. In 1855, the losses and casualties were 1,107, and in 1868 they had risen to 1,747, so that whilst the shipping had increased at the rate of eight per cent., the casualties had increased at the rate of fifty per cent. The increase in casualties was simultaneous with the increase of steamers, and occurred in the majority of cases to vessels of that description.

With respect to the cause of those losses, there were not two opinions either in or out of doors; everyone attributed them to the prevailing practice of overloading the vessels. Taking two steamers that sailed, one from the east and one from the west, I find that the one which sailed from the west was 500 tons register, and that she went to sea with a cargo of between 1,000 and 1,100 tons, being more than double the register and double the ratio allowed by the Indian Council, and the Admiralty, for storeships. Of that cargo 800 tons were pigs of iron, and that vessel foundered at sea with twenty-four hands on board. The ship from the east registered 800 tons, and she went to sea with 1,600 tons of dead weight, being two tons to every one of the register. This vessel fortunately foundered within sight of land, and fortunately, therefore, her hands were saved. He could mention many other cases, including one in which 300 lives were lost, but there was one recent case which had appeared in all the newspapers, and which would sufficiently enforce his argument. He alluded to the *Sea Queen*, which first started into life as the *Normandy*, got a bad reputation, had her name changed on that account to the *Venezuela;* got another bad character, and then became the *Sea Queen*, the name under which she was lost. Her last owners bought her for £7,500, and at once insured her for £10,000, so that if she came to be lost they must have £2,500 to the good. He begged here to state that he made no insinuations, but merely stated facts. This vessel registered 670 tons, and on the 11th of February last she sailed from the Tyne with 1,100 tons of coals on board. She went out on the 11th, and on the 13th she went down, with her twenty-three hands.

At the inquiry which took place the friends of the poor fellows

deposed that they all felt they were going to their doom, but they shrunk from being called cowards, they thought of their families, and they feared the consequence of breaking their articles. Capt. Bullock, the harbour master, who was summoned by the owners as a favourable witness, deposed that when he saw her leave the port so deeply laden, he feared that she was to become a coffin for the crew. Capt. Bullock said he felt convinced that the vessel would never reach her destination. For thirty years Messrs. Cunard had been navigating the Atlantic with their steamships, and excepting one boat which was capsized with six hands, they had not lost a ship, a life, or a letter in that period, and the losses of the Peninsular and Oriental Company during the time they had carried on business were comparatively trifling. At the meeting of the Associated Chambers of Commerce in February last, a resolution was passed calling the attention of the Government to the frequent losses of sailing and steam ships from the practice of overloading, and suggesting that the Mercantile Marine Bill should contain provisions for determining the maximum load line, and a memorial was addressed to the Board of Trade proposing that there should be a compulsory periodical inspection of all sailing and steam ships not carrying passengers.

The Salvage Association, in a letter he had recently received, stated that it was notorious that many vessels left English ports dangerously overloaded, and recommended that the subject should be investigated by a Royal Commission; and the Newcastle Chamber of Commerce declared, in a petition to that House, that unless the Mercantile Marine Bill contained provisions to meet the evils resulting from overloading, it would fail to deal with one of the most distinct and recognised deficiencies of the merchant shipping service. There could be no doubt that fearful losses occurred, and that they were mainly due to overloading, and no one in such a state of things would deny that the subject required serious attention. The remedy, no doubt, was difficult to provide, but that was a strong argument in favour of the inquiry which he proposed should be instituted.

In France there was in every port a commission from which a certificate of seaworthiness had to be obtained before any ship could leave port, and the system was very effectual, but he did not know whether the shipowners of England would be willing to adopt such a plan as that. Insurance offices could not be relied upon to stop these things, because, instead of prudent combination there was great competition among underwriters, the Board of Trade inquiries were not so conducted as to give satisfaction or confidence. For two months after the loss of the *Sea Queen* no inquiry was contemplated, and in the recent case of the loss of the *City of Boston*, with 200 lives, there had been no investigation on behalf of the Board of Trade, though it was said that there were persons of respectability ready to make statements with regard to the condition in which she left Halifax. Supposing a railway accident occurred, and one-fourth of 200 lives were sacrificed, public indignation would not allow the company to prosecute a libel against a person who dared to question the cause of the calamity, and

in all these cases he thought owners of vessels ought to court inquiry. Every case where human life was sacrificed ought to be investigated on the part of the Government for the satisfaction of the public. He could not understand the reason for the repeal of the regulation which remained in force up to 1862 prohibiting passenger ships from going to sea without water-tight bulkheads.

There was the case of the *Damascus*, one of the Canadian mail steamers, which came in to Liverpool with one of her compartments full of water. Her bulkheads were watertight, or she would have sunk. Another case was that of the *North America*, another ship of the same line. She fell in with ice off the coast of Newfoundland. She stove in her bows, her fore parts were entirely filled with water, and if it had not been for her bulkheads that ship would have foundered at sea. Another point that required attention was that the cargo of the ship was properly stowed. He believed that was one of the several causes that led to the loss by the collision of ships. They had had three cases lately—the *Oneida* and the *Bombay*, the *Normandy* and the *Mary*, and two other ships whose names he had forgotten. He did not know what course Government intended to take. He expected to be met with two answers. The first was the great difficulty of the subject. But he could not accept that argument as an answer. Then he might be told that he might have a Committee, but on many grounds he thought the inquiry should be conducted by a Commission composed of competent men who could continue their inquiry after the session was over. He appealed to the Government to consider the magnitude of the evil and to grant the inquiry that he asked for.

Sir J. HAY said that if the right hon. gentleman consulted public opinion on the subject he would find that it was strongly in favour of the course proposed by his right hon. friend the member for Droitwich, and as a proof of that he might refer to the petitions from the Chambers of Commerce at Bristol, Cardiff, Dundee, Exeter, Falmouth, Gloucester, Pool, Hull, Middlesborough, Newcastle-on-Tyne, Plymouth, Stockton, Sunderland, and West Hartlepool, which were all in favour of inspection, and had made various other suggestions which were not included in the Bill. The right hon. Secretary of the Board of Trade had stated that inquiries were made in all cases in which they were required, but he did not do so in the case of the *Marquis of Abercorn*, which was lost when plying between the Clyde and Belfast.

We much fear that we have scarcely left ourselves room to record our satisfaction at the following:—

*Trinity House.*—At a special court of the Corporation, held at the Trinity House, on Tower-hill, on Tuesday, the 17th May, Admiral Sir Alexander Milne, K.C.B., and the Right Hon. Earl Granville, K.G., were unanimously elected Elder Brethren of that ancient society.

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To CORRESPONDENTS.—Our Newcastle packet, *Australia*, has safely reached us, for which our best thanks.

THE

# NAUTICAL MAGAZINE

AND

# NAVAL CHRONICLE.

JULY, 1870.

## A Run round the Mediterranean Sea,

*With a glance at its classic and modern claims to the attention of the seaman,*

By Sr. P. Riudavits y Tudury.

Translation and Notes by Ed.

This domain of the Poets, the chief offspring of the vast western ocean, is the Great Sea; the *mare magnum* of the Hebrews, and the Interior Sea, the *mare internum* of the Greeks, while it is named by the Arabians the Sea of Syria. Locked up between the continents of the old world, Europe, Asia, and Africa, it has been looked on as an international lake, which from time immemorial has formed the high road of communication between the several nations which dwelt on its shores.

The Israelites called the Mediterranean the Great Sea, and well might they do so; when comparing it with the diminutive Sea of Galilee (or Dead Sea), or even with the Red Sea. The primitive navigators might well name it *interior*, when on sailing along its coasts, they found it was surrounded by land, and almost excluded from that outer sea, that sea of darkness, of the limits of which, they were utterly ignorant.

And are we not authorized to call it the Domain of the Poets? Is not every episode, even the most insignificant poem which has celebrated the deeds it has witnessed, a proof of the justness of this title? There is neither promontory, island, nor bay within it, that has not afforded subject (whether ancient or modern) for epic or dramatic poetry; nor is there a city or town, flourishing or in ruins in these our days washed by its waters that does not occupy its pages of story in the history of mankind. The Mediterranean was the birth-place of our fine arts, and of old the dominion of that sea has been disputed by the fleets of Carthage, Greece, and Rome; in the middle ages by

those of Spain, France, and Italy; and in modern times by those of Britain and her gay yachts.

Such is the historical interest awakened by the Mediterranean, that the desire is universal to visit its shores: the man of learning even from the most distant parts of the world would see them, because there the greatest empires of the old world were seated and flourished, and the most remarkable events recorded in history were there enacted. On those shores also religion first dawned; the arts and sciences were born, and carried by Egyptian, Phœnician, and Roman vessels beyond the pillars of Hercules, were diffused along the northern shores of Europe to be transplanted beyond those shores, and in turn to become naturalized on those of the new world.

Let us cast a rapid glance over these shores, and we shall see the truth of what we have advanced.

We will not allow the Iberian Sea or that which surrounds the Balearic islands to detain us; but will pass over the scenes of Carthagenian and Roman warfare, whether on the waters of New Carthage or those of the immortal Saguntum.* Let us transfer ourselves at once to the Ligustic Sea, passing the Greek Massilia, the modern Marseilles, the rich commercial emporium of imperial France, which we may leave on our left, and land for a moment at the Ligurian capital,† the superb Genoa of the middle ages, the bold rival of lucky Venice, seated in the midst of an amphitheatre of picturesque country. What recollections does not this beautiful city and its wealthy commerce recall; the country of the illustrious Dorias, and that of the first transatlantic navigator, the immortal Columbus!‡

* Carthage we shall have to mention hereafter, but here we may state that Saguntum of old is the modern Morviedro, captured by the Carthagenian General Hannibal after a seige of eight months: once celebrated for pottery. It now bears the name of Morviedro having a strong castle still called Sagunta, and a Roman amphitheatre four miles from the sea, and sixteen N. by E. of Valencia.

† Ligustic Sea, the Ligurian capital:—from Liguria a country west of Italy the capital of which was Genoa, supposed to derive the name Liguria from Ligyes mentioned by Herodotus. We read that the country was subdued by the Romans, and that its chief harbour now bears the name of Leghorn.

‡ Columbus: see the Landfall of Columbus for the track of the discoverer of the New World after his voyage across the Atlantic, published by J. D. Potter, 31, Poultry, Author A. B. Becher, Captain, R.N., 1852.

Who among our sailor readers would not rejoice in all honours lavished on the memory of Columbus. In France the Empress appears to be following a recent movement concerning his memorial at Madrid (for the proceedings concerning which we should be thankful to any of our readers), by sending out a statue of him to Colon, as appears by a recent extract from the *Athenæum* here transcribed.

"The Empress of the French has commemorated the great benefactor of the Spanish race, Christoval Columbus, or Colon, by despatching a statue of him to the city named after him as Colon, on the Isthmus, but called by our people Aspinwall. Her Majesty hopes this memorial will meet the gaze of travellers of all nations. But the Panama Railway is threatened in its supremacy; not only does the Pacific Railway compete with it, but the Honduras Railway is advancing, and a canal will be made across the Isthmus, if it be possible, and the statue of Colon at Colon may find few spectators ere long."

If from the enchanting shore of Genoa we run over the Tyrrhenian Sea * by the picturesque channel of Piombino, we shall meet with the Ilva † of the ancients, the modern Elba with its iron mines, once the gilded prison of the great general of his day, and we shall soon discover the white Roman plains. Now we perceive the coloured waters of the Tivirone, which force their way by the mouths of Clementina and St. Vita to surround the sacred isle. Let us stay for a moment off its delta, and we may see the valley through which descends the Tiber of history, and then we shall perceive in the distance the beacon of the eternal city, the summit of the majestic cupola of St. Peter's at Rome, the happy idea of Michael Angelo, and the pride of modern architecture. This summit which is the lantern of the great dome apprises us of the capital of the Roman Catholic world, the queen of the old world, which shelters the Roman Pontiff, who with an iron hand would rule from east to west, and from north to south.

We will resume our progress along this coast of Hesperia ‡ (as it was known by the Greeks), this classic shore, which so much excites our enthusiasm by its venerable ruins, and we approach Parthanope, § now the flourishing city of Naples; in former days, the rich ornament the largest flower of the Spanish crown, and before we reach its waters we observe the colossal beacon light indicating its position by a stream of smoke during the day, and in the darkness of night by the splendid light of burning lava. The present inactivity of Vesuvius, ‖ which majestically commands the panorama by which it is surrounded, cannot

Would not such a statue be better placed on the Honduras Government Railway from Puerto Caballos on the Atlantic, to the bay of Fonseca on the Pacific, the company of which we perceive is just organized. Perhaps England herself might "lend a hand" towards so becoming an object; the position of this line rendering it likely to be most successful.

* Tyrrhenian Sea: that part of the Mediterranean which washes the coasts of Etruria. Sometimes called *Inferum* as being south of Italy.

† Ilva: the modern Elba celebrated throughout the world for the reason stated, but formerly celebrated for its iron mines.

‡ Hesperia: this name appears to be common to both Italy and Spain. It has but one origin being derived from Hesper or Vesper the setting sun. Hence the Greeks called Italy Hesperia, because it was situated from them to the west, or towards the setting sun, and for the same reason it was applied to Spain by the Latins.

§ According to Virgil the name Parthanope was the original name of Naples: she being one of the Syrens whose body was found there on the sea shore. Having been enlarged by a colony from Eubæa (Negropont) and much ornamented it was called Neapolis or the new city, now Naples.

‖ Vesuvius: about six miles east of Naples. It is stated that the ancient writers of the Augustinian age spoke of Vesuvius as a place of orchards and vineyards, of which the middle was dry and barren. The first eruption of this volcano was in the seventy-ninth year of the Christian era. It was accompanied by an earthquake which overwhelmed Pompeii and Herculaneum, and the burning ashes which it threw up were carried not only over the neighbouring country, but as far as the shores of Egypt, Syria, and Lybia. This eruption proved fatal to Pliny the naturalist; and frequent eruptions have since taken place. Smoke is perpetually issuing from it and sometimes flames and ashes. It is 8,780 feet above the level of the sea.

blot out of our memory its imposing, and disastrous convulsions of former days, nor the horror with which in the early years of our own era, we witnessed the remains of the unhappy people of Herculaneum and Pompeii, whose works, recently brought to light, form an eloquent page in the history of the Roman Empire.

However, we must leave these musings on public and private life, suggested by the rulers of the old world; and soon we find ourselves by the Æolian isles,* that little group of volcanic origin to which Stromboli belongs,—that inexhaustible furnace surrounded by the sea, whose resplendent flame reminds us of the ingenious fable of the lame Vulcan of old, working at his Cyclopean forge, the mysterious thunderbolts of Jupiter, which the father of the gods hurled from Mount Olympus.

And passing from the abode of Æolus, that formidable author of storms, who preserved his windy stores in sacks! let us run through the Mamertine† Strait, which separates Hesperia from unhappy Sicily. But we must sail with caution through its bewildering currents, keeping an eye on Scylla and yet avoiding Charybdis; and as we pass Etna,‡ we may salute the king of volcanoes of the old world, who although apparently sleeping, now and then rouses himself into action with renewed vigour, to spread desolation over those rich districts, reposing their confidence in his lethargy.

We will now double Cape Spartivento, leaving on our left the shores

* Œolian Isles: at once remind us of Œolus the presiding deity over the winds, commonly called the king of storms. First of this great person. We need not go into his fabulous genealogy, but we may in all respect just notice that his very name is derived or said to be most probably derived from the Greek word αεολσς signifying various, because the winds over which he presided are ever varying. The reason holds good as well now as ever, for what is more variable than the wind. But the stories that have been perpetrated about him are endless, and just what the fabulous loving Greeks delighted in. However he is said to have reigned over Œolia, and obtained his station from the poets because he was the inventor of sails, besides being a great astronomer: attributes of which we confess to have been ignorant among his other qualifications. Now this Œolia his territory, or the Œolian islands, were said to be seen situated between Sicily and Italy, consisting of Lipari and others, they are sometimes called Lipari islands and sometimes Vulcaniæ, or the work place of Vulcan. Œolia it appears was a name belonging to a part of Thessaly and Bœotus the son of Neptune having settled there, his followers were called Bœotians, and that country Bœotia. So that we are thus accidentally made acquainted with the part of the world whence the great marine presiding deities sprung, Neptune and Œolus as well as Vulcan, who, we all know used to forge the bolts of Jove in one or more of these stormy abodes! But we must be as brief as the *important* nature of our subject will admit.

† Mamertine Strait derives its name from the Mamertina, a name assumed by a lawless band, who passed from Campania into Sicily where they committed several atrocities, but were made to leave, and on their return, settled and called their city Mamertina, from a word in their language signifying martial, or warlike.

‡ Etna, the great forge of Vulcan, where his assistants, the Cyclops, contributed their labours to forge the thunderbolts of Jupiter. From the period of about 500 years before the Christian era the volcano was in action, and the last eruption seems to have taken place in 1832.

of Calabria and the land of the celebrated Castle of Otranto, and without being tempted into the Adriatic, in the interior of which reposes the beautiful Venice the city of the Doges, where we once heard of the celebrated Bucentaur,* that Venice now the shadow of the once powerful Queen of the Adriatic, and the implacable enemy of the Crescent; we will direct our course to that Seven-island republic, the Ionian islands, which we perceive are in Greek waters. As we approach them we can distinguish the diminutive Ythaca yet celebrated in former days of conjugal fidelity, in which the first years were passed of the virtuous Telemachus. We need not think of entering the Gulf of Lepanto, that arm of the Mediterranean which penetrates the Grecian territory to Corinth, the entrance we see between Argostoli and the islands Cephalonia and Zea. But we may merely notice the grand drama which took place in its waters at the end of the sixteenth century, in which the invincible fleet of Christianity commanded by the intrepid Don Juan of Austria, annihilated that formidable Turkish Armada which disputed with him the command of the Mediterranean.

Already on the coast of the Morea we will pass the Peloponnesus, abounding in historic records, and in these days about to become an island. We are leaving on our own right the celebrated country of Mimos (the confidant of Jupiter himself), his kingdom being now known as the island of Candia or Crete, peopled with heroic mortals who have recently given sterling proof of Helenic valour, and we enter the Ægean Sea passing between the Cyclades,† that smiling group forming an amphitheatre round the sacred Delos of the ancients; in these days deserted, but formerly resorted to during the turbulent assemblages at the temples of Diana and Apollo, divinities stated to have been born on this rock which appeared suddenly from the sea off the north end of Naxos.

Passing on our left the Argolicus Sinus, now the Gulf of Napoli, we are tempted into the Saronicus Sinus, now the Gulf of Egina, that we may salute the cradle of the arts and sciences; that we may behold Athens the city of Tisco, reduced at present to the mere shadow of the place which was once the capital of the civilized world, the preceptress of Europe! What sublime recollections does not her very name call forth. There, in the interior of the Gulf, appears the Isle Salamis celebrated in history, now Colouri, where the great Themistocles

* We remember having seen a model of the celebrated Bucentaur at the Crystal Palace, where, with many other such interesting relics, it was destroyed by fire in the sadly memorable year 1866. See *Nautical Magazine*, 1867.

† Cyclades, abounding in historic lore, but deriving their name from encircling Delos, which is one of them at the north end of Naxos; but so small as to be unknown to small maps. This same Delos was thus named from being suddenly raised from the sea by the powers of Neptune. It is celebrated by a long train of particulars, one of which is that it was once considered one of the seven wonders of the world, and remarkable for its temple dedicated to Apollo. But the whole island was held in such veneration that the Persians who pillaged and profaned all the temples of Greece, never offered violence to the temple of Apollo. It is also curious that no dogs were ever admitted to the island.

in a bloody combat with a formidable Prussian fleet commanded by Xerxes, utterly destroyed it; and beyond it the skirts of the city of Cecrops, the Piræus, now Port Leone the former emporium of Helenic commerce. On the right rises the majestic Himeto commanding the whole of Attica, the diadem of ancient Greece, a mark for the modern navigator for the site of Athens, and emblem of the past existence of that republic of heroes and sages, whose deeds have for ages gone by supplied the historian and the poet with subjects for their works.

We must leave these objects of unhappy memory and historical interest for modern times and say farewell to Hellenic shores, shadows of past glories, that we may range over the Egean Sea. Here we find islands on either hand each one of which claims its page in Grecian History, not only mythological, but of later kind, from those fierce combats which this people have undergone with the triple forces of their oppressors.

Tenedos is before us, but we will leave the Hellespont on our left and turn to the Trojan coast, that silent shore which in former times could boast the city of Priam, the invincible Ilion,* of which the shadows are now left to us by the destructive hand of man, and the devastating influence of time. Nor can we even find for certain the true site of that country from whence came the pious Eneas, and but for the lays of Homer and Virgil we should be ignorant of the ten years' war that was fought under its walls, in which both Greeks and Trojans surpassed each other in heroism, in perseverance and suffering, employing every means of attack and defence invented in those days, and known to their experienced leaders. We have yet to notice the Sporades — islands scattered about the Egean Sea, some on the Anatolian Coast, and others about Delos of the Cyclades. They may be considered the outposts which in former times guarded the celebrated cities of Ephesus, Heraclea, Mileto, and Halicarnassus, and others of Asia Minor which were the early resort of mankind.

Yet we must not omit to point to Scio as the land of Homer, the immortal bard of the Trojan war and father of epic poesy.

Let us quit this labyrinth of the Sporades† by the Channel of Rhodes which enables us to see the Colossus of history, and the last hold of the knights of St. John of Jerusalem, on being driven from the Holy Land at the end of the thirteenth century, and we shall have before us the celebrated Paphian‡ Isle, the delightful Cyprus, whose fragrant bowers

* Ilion. The country being so called from Ilion the daughter of Priam, the venerable king of Troy, barbarously slain by the son of Achilles.

† Sporades: various islands in the Ægean sea are called Sporades, a Greek word meaning scattered, and at a distance from Delos.

‡ Paphian isle: from Paphos, now Bafo, a famous city of Cyprus founded as is supposed 1184 years before the Christian era. Here, as we are told, almost by the Irish Bard, the Goddess of Beauty was particularly worshipped, and here too it was that young Love was found among the roses; at least so tells us John Colston Doyle, in his celebrated lines:—

were time out of mind claimed by the little blind deity as his own, and where the Queen of the Graces established her altar, to which the beautiful Cypriotes hasten to consecrate their virgin offerings in the arms of their first chosen admirers.

Leaving on our left this ancient temple of love, we can soon discover the crested summits of Lebanon,* the rocky folds of which descend to the waters of the Great Sea.

What a multitude of subjects for reflection rush into the mind on first witnessing the coast which is now unfolded to us. Syria! Phœincia! which has produced the most daring navigators of the primitive ages! A brave commercial race which has been displaced by one of indolent Islamites! On its shores wander the shades of Sidon and Tyre, besides a multitude of other towns the names of which are all but effaced from memory, and like Babylon and Nineveh their very places scarcely known, swept away by the flight of ages.

Let us run along this Galilean shore of the Great Sea, beyond which in the solitary wilds and glens of the interior mountains the sacred Jordan winds its lonely way: its waters sanctified by the baptism of the Nazarene; but now poor and insignificant like the country which it waters. Let us run down the shores of Samaria and Judea and in sight of Jaffa, the Joppa of the ancients, the landing place of those pilgrims who voyaged to the Holy Land, in order that they might adore the relics shut up in the city of God, the daughter of Sion, that which was the witness of the predictions and martyrdom of

"Young Love flew to the Paphian bower,
And gathered sweets from many a flower,
From roses and sweet jessamine,
The lily and the eglantine,
The Graces there were culling posies,
And found young Love among the roses."

* Lebanon: Our author warms up under the name, and Moore says of the Syrian coast:—

"—— Like a glory, the broad Sun
Hangs over Sainted Lebanon,
Whose head in wintry grandeur tow'rs,
And whiten with eternal sleet,
While Summer in a vale of flowers,
Is sleeping rosy at his feet."

There is a remarkable spring of fresh water in the sea off the isle of Ruad, on the Syrian Coast, an account of which appears in our number for March (p. 119), which we may quote in part here, being a natural phenomenon of most rare occurrence. The account says:

"Between Ruad and the main (land of Syria) are three fresh water springs bubbling up in the sea in four fathoms water. During calm weather the water is thrown up in jets above the sea surface. These are in all probability, the springs mentioned by Strabo from which the inhabitants during time of war drew their supplies by letting down from a boat which served for the purpose, and inverting over the spring (at the bottom of the sea) a wide mouthed funnel of lead, the end of which was contracted to a moderate sized opening: round this was fastened a long leathern pipe, which we may call the neck and which received the water forced up from the spring through the funnel."

For an account of the island itself we may refer the reader to the number and page above mentioned.

the Redeemer of fallen man. How many places sanctified by Christian piety are there scattered about under the walls of Jerusalem? How many are there that have been moistened by the blood of crusaders who have fallen under the scimitars of hosts of Ottomans, in defence of venerated places entrusted now to the slender custody of a few religious monks?

But we must leave Palestine, that land of promise to the chosen race, where originated the numerous collection of Bibles attributed to Moses and inspired writers; where the greatest events recorded in history occurred sufficient to change the views of the human race; where lie the mute remains of the city of David sacked and laid waste on seventeen different occasions, the ruins of which are now occupied by the followers of Mahomet, and some descendants of Abraham, the former ever the unrelenting scourge of Christians, the latter the unhappy objects of hatred and proscription, sunk in the most squalid misery, slaves to the Mussulman and strangers in their own land, always disclaiming, always expecting!

We are now approaching the low shores of Egypt, the country of obelisks, the skeletons of towns and cities, the ruins of temples and palaces and colossal effigies, the land in which the germs of modern civilization have taken root, spread over the world by the ships of Sesostris and the Ptolemies, and we will enter the Pelusian isthmus, nothing but a desert a few years ago, but now the resort of thousands of ships from all nations. What an enormous change has been brought about within a comparatively short interval of time! What town is that which has suddenly sprung up on its sandy shore? Yes, it is the town of Port Said, at the entrance of the maritime Canal of Suez,*

* Canal of Suez. In a former number of our present volume, p. 49, to the great Munchausen was assigned the earliest notice we had met with of this work. This wonderful individual, no doubt, did many things in his own peculiar way. But we have here an earlier record than his imaginary cut, for the notice of which we are indebted to the *Sydney Morning Herald* of the 12th of February last, in which we meet with the following:

UNEARTHED.—As history repeats itself, so do great thoughts. The Suez Canal is, after all, an English idea, three hundred years old. In the second part of old Christopher Marlowe's "Tamburlaine the Great," Tamburlaine thus delivers himself:—

"And here, not far from Alexandria,
Where, as the Terrene and the Red Sea meet,
Being distant less than full one hundred leagues,
I meant to cut a channel to them both,
That men might quickly sail to India."—Act V. Scene 3.

The date of these lines is about 1590.

Certainly this idea of Tamburlaine has been carried out; among the later passages through the Canal, we find that it is becoming the favourite route, we are told that—

The *Hooghly*, the largest steamer of the Messageries Imperiales Company, carrying the India, China, and Japan mails, thus inaugurating the French Postal Service by this route. At the same time the English steamers *Kaffraria* and *Robert Lowe* have passed Ismailia on their way to Suez. Since the steamers *Brazilan*, *Cordova*, *Danube*, *Albatross*, *Milbanke*, *Bywell Castle*, *Chandi*, *Dangola*, *Europe*, *Africa*, and *Vedetta* have also passed through, as well as our troop-ship

extending its length between two seas enticing the commerce of Europe thus to take the direct course to India! It is the first part of the great project of M. Lesseps, the modern Hercules, who availing himself of the stalwart arms of the modern labourer of the nineteenth century has perforated rocks and opened out channels in less than ten years between Asia and Africa, who has given to Suez and Aden the priority of Indian commerce, which had been conceded to the discovery of the stormy Cape of Good Hope, and has realized the grand scheme conceived centuries ago of uniting in friendly partnership the coral sea with the sea of pearls, already in connection under the swift assistance of the rail.

Let us take a coasting sail along the shifting sandy shores of the Nile delta, that shallow half drowned islet which in the form of the Greek letter is imprisoned between the two main arms of the mysterious Scripture river of the ancient Egyptians, one which for so many centuries has concealed its source from the penetration of the wisest of European geographers.

Let us enter the turbid waters discharged from the Damietta and Rosetta mouths and cross the Aboukir bay, where the brave Nelson dealt terrible destruction among the republican ships of France and contemplate the city of Alexander the Great, for many centuries the capital of Egypt and the rich commercial emporium of Europe and India in the most remote ages; the Ptolemies, that race of wise and adventurous princes, which spread science over the known world of their day, after having collected it in their schools and in the archives of their famous library. We will not enter their port, but consider it from without. The modern Alexandria, the Iskenderoon of the Arabs, seated on a tongue of low sandy land, presents first the ancient islet of Pharos:* the forts and palaces of the Viceroy, and next a row of white buildings with beautiful minarets which appearing as mingled with numerous masts of shipping form a most picturesque view remarkably distinct on a beautifully clear sky when the zamiel, does not encumber the atmosphere with the minute sand of the desert. And if we look stedfastly at this forest of mingled masts and minarets we shall discover a handsome granite column which commands them all, and which for centuries has defied the ravages of time and the destructive work of man, which stands before us as the highest and

the *Jumna*. It has been also used by H.M.S. *Daphne*, as well as the *Nassau*, Commander Chimmo, on his way to the Indian Seas on Surveying duties. We trust so great an advantage will not be permitted to be lost through any neglect, and that we shall rather hear of its improvement than its deterioration.

* It would ill become the pages of the *Nautical* to pass by the celebrated Pharos of Alexandria without some acknowledgment of respect for the most ancient of lighthouses, dating 283 years before the Christian era; which structure receiving the name of the islet on which it was erected, has imparted that name to works of that nature in general throughout the world. Whether exaggerated or not (which however is most likely) the height of it we are told was about 400 feet. It would lead us far beyond our object to go into this subject here. We shall perhaps have more to say on it hereafter, as well as the absence of tides in the Mediterranean generally.

most ancient column of its Doric order, bearing the high sounding title of Pompey's pillar, reminding us of the grandeur of those princes in their generations who have followed each other to the soil of Alexander the Great.

We must take a reluctant farewell of the land of the Pharaohs, whose people by gigantic steps are now working in concert with European views, throwing aside their old Mussulman habits, thanks to their initiative the Pasha Mahomet Ali, as well as his illustrious nephews, the khedives, Said and Ismail. We will now follow the Lybian shores occupied at present by plundering tribes, and keep at a respectful distance from the Great Syrtis, that terror of the ancient navigators as well as the Little Syrtis, which contains the island of Gelves, a nest of pirates in the fifteenth and sixteenth centuries, and routed by Catholics in 1560. We must adopt a cautious course across the Sicilian Sea, abounding as it does with rocks and shoals among which poets have located the enchanted abode of Calypso, and we will now make for Tunis.

Having passed Zembra we perceive the Carthagenian promontory, in former days the outer sentinel of the city of Dido, the celebrated Byrsa, the formidable outwork which guarded the approach to Carthage* the cradle of the great Hannibal. What sad recollections return from the shadows of this immense capital of sailors and heroes, raised by Phœnician genius of this empire of above three hundred cities and towns of the Lybian coast, the conquerors of the ferocious dwellers of Sicily, Sardinia, and Corsica, and then masters of the Iberian shores, the daring emulators of proud Rome disputing with them the command of the Mediterranean, and ultimately routed out by the Roman general Scipio the conqueror of Africa, after seven centuries of a preponderating existence.

And then as a singular contrast in human affairs, while there is scarcely a vestige left in these days of the Great Phœnician Republic, a little beyond the lake El Bahira stands conspicuous in its form of an amphitheatre the Turkish town of Tunis, the *Tunetum* of the Romans, the contemporary of Carthage, attacked with devastating effect in 1270 by St. Louis, and conquered in 1535 by Catholic forces, commanded by the fortunate Charles the First, king of Spain, to turn it over to its legitimate sovereign the Sultan Muley Hassan. We take our leave

* Carthage. Here we are deserted by our geography, our maps and charts all ignore the site of Carthage, the cradle as our author tells us of the great Hannibal. Tunis, the Turkish town and its gulf of the same name, we must consider as the only remaining witnesses of the site of the great port from whence issued those Phœnician ships of which so much is said in history. It is remarkable, indeed, that of the 300 cities and towns spread along that shore of Africa no vestige remains. Their wars with the Romans along with the devastating hand of Time have literally swept all about its Phœnician towns and cities from the face of the earth! Pains, indeed, seem to have been taken to obliterate not only the site of Carthage, but the Cape of that name too must go with the wreck; for it now stands on our maps as Cape Bon! It is said that these Carthagenians were a faithless and treacherous people. The place fell into the hands of the Saracens in the seventh century.

of the galleys of this ancient fortress which vainly resisted Spanish arms, and turn our course towards the Sardinian channel for the waters that wash the shore of Algiers, that now extensive rich colony of France, the *Mauritania Cesariensis* of the Romans. Let us delay a moment off Algiers itself, the *El Gezair*, of the Arabs, the patron of the ignominy of Catholic forces, the retreat in later years of pirates, under whose walls in 1541, the pride of Charles the Fifth of Spain was humiliated in his attempt to destroy Barbarosa, the enemy of Christianity, and the chief under whom thousands of Europeans were prisoners in fetid dungeons, among whom was the unfortunate great Cervantes of Lepanto.

Let us still notice that this semi-Arab and semi-European city, still under the Turkish dominion, was all but annihilated by British ships in 1816, under the command of Lord Exmouth; and again in 1830 conquered by French arms, which terminated the race of beys, and checked various lawless proceedings of the coasting Moors. It would have been well for humanity if the same wholesome and timely check had been dealt to the Riffian marauders on the coast of Morocco.

Nor let us fail to record in skirting the Mauritanian coast, that few attractions can be found there for the voyager, as a concluding remark to that mental visit that we proposed, and have now paid to Mediterranean shores, with the view of justifying the essays of the poets, in whose behalf we have made it.

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## NOTES OF A VOYAGE FROM ENGLAND TO CALCUTTA AND RETURN.

*(Continued from page 292.)*

WE left the Sand Heads on the 2nd of December and arrived off Kenery on the night of the 12th, dropped anchor on the 13th, and discharged our cargo in due course. Never did I see the shipping interest at so low an ebb. There was literally no employment, nothing to be done. However after looking round for a month my ship was chartered by a Zanzibar Merchant to go to Goa, and embark 300 Portuguese troops for Mozambique, ship providing wood and water, then from Mozambique to Zanzibar for a cargo for London. We shipped tanks for 22,000 gallons of water, and firewood for 300 men to last a month, with cooking stoves, latrines, etc., as necessary. We arrived at Goa on the 27th, and there met with the kindest of treatment.

An invitation from the Governor-General to lunch with him was one of the first attentions which rendered our visit to Goa pleasant, letters to the Intendant at Old Goa followed, where also a very pleasant day was passed. The extent of the ruins of that city was remarkable, the thickness of the walls most surprising, for nothing like them in British India, of British architecture, could be compared with them. The churches, and convents, that are kept in repair for service on

certain Popish festivals are grand buildings, and can boast many very fine paintings of the old masters. In one building, the altarpiece consists of a brass figure of Ignatius Loyola about twelve or fourteen feet high; and in a small chapel is the magnificent tomb of St. Frances Xavier,* composed of granite of different kinds, with white and black marble, and red Aberdeen granite pillars. This is surmounted by a silver sarcophagus, the whole being covered with rich red damask and gold curtains. The tomb of St. Vincent de Paul is also there, and of several other distinguished men among the Jesuits. On the whole it appeared to me that it must be as expensive to keep those fine establishments in good repair, as it is to keep in order the whole civil and military establishments of the Colony.

The anchorage at Goa is silting up and becoming more and more shallow. We anchored with the lighthouse north in four and three-quarter fathoms, at low water we had only four fathoms. The captain of the port told me that in his time the water had shoaled a whole fathom. New Goa is a clean little place with large squares, and generally wide streets surrounded by very beautiful scenery. We embarked our detachment on the 30th, and got under way at 5 p.m.

The despatch of this expeditionary force was managed by a contractor, who found ship, provisions and everything concerning it. The Government had nothing to do with it. But this contractor wanted to send me away with the troops with fourteen days' provisions on board. I soon saw the folly of this and went to the governor direct, who immediately ordered enough for twenty days to be embarked. The man contracted with me in Bombay to feed the officers for five rupees a day each; and I learnt from them when on board that the Government paid thirty pounds for the passage of each of these officers! Portuguese troops are a most disagreeable set of people to have anything to do with; they are difficult to understand, as very few of them speak any other language but their own. Then they are so helpless that every thing must be done for them. Not only do they give no help in washing decks, but they make a disturbance about the deck being wet where they want to stand and smoke! But they have one very entertaining custom in morning and evening Prayers. On each of these occasions a bugler gives a warning sound with his instrument, at which every one stands at attention. Then the bugler plays a merry tune, perhaps a Psalm tune in quick time. Then every one lifts his cap, and when the bugler has finished his tune, then every one says "Good Morning" or "Good Night" as the case may be, and this means Prayers! On Sundays all the buglers blow together, a proceeding which is meant as Divine Service. But while I had these gentry on board, I picked up a little historical information that might have been interesting, especially to Sir Archibald Alison, having obtained it from a Goa Portuguese officer, who was going over as Aid-de-camp to the new Governor-General of Mozambique. He

* It will be remembered that Xavier was a missionary to Japan, see *Nautical Magazine*, 1868.

informed me with much gravity that the English were a small nation of fishermen, who would not be able to exist if it was not for the protection of the Portuguese. These Portuguese he said prevent the French and Spaniards from taking possession of the island where they catch their fish. Moreover he added that a few English soldiers were sent to Portugal during the French war, but they were such useless bad soldiers that they were sent back to England again: and a handful of Portuguese troops drove the French across the Pyrenees. According to my informant the English were not engaged at the Alma, nor yet at Inkerman, and Lord Raglan proposed to storm the Malakoff with two troops of Dragoons. There were no troops equal to the Portuguese according to this gentleman. But the commandant was a very different man; he was an European officer of distinction, and the equal of any British officer I have ever sailed with. He was disgusted, as he well might be, with the foolish talk of his subordinates.

We arrived at Mozambique on 16th February, and disembarked our passengers on the 17th, our Commandant being sworn in on that day as Governor-General of Mozambique, which ceremony it was my good fortune to witness. Just as it was all over H.M.S. *Mother Carey's Chicken* (as we may call her) arrived, having £9,000 in specie for the Governor. The captain of the ship of war was of course invited to dine with the Governor as well as myself, and I need hardly say that everything was as it should be, and we passed a very pleasant evening. The Governor's palace is an old Jesuit College, an old-fashioned oblong building with an open quadrangle in the centre, from which a double flight of steps leads to the reception rooms above. These are lofty, substantial, and airy, but they have forgotten to supply them with that indispensable article in a warm climate the punkah, a sad drawback to comfort. The Chapel occupies the southern end of the building, and seems to be the best in the place. There is a very good portrait of the king of Portugal in one of the rooms, and this is the only ornament of the kind that we saw, excepting some wretched French prints of the Battles in the Crimea, in which the English soldier does not once appear. The walls of the reception rooms of the Governor's palace at Goa contain portraits of all the Governor-Generals, but there has been no attempt made of the same kind at Mozambique.

The pier in the harbour is really a very fine piece of masonry, but it does not extend far enough out to be of any service in landing cargo. It was erected some fifty years ago, by the then Governor, who was the father or uncle of the present whom we had just landed, and who is a fine specimen of a European military officer, Doctor Livingstone's book notwithstanding! On the 18th the captain of the English ship of war requested me to give a passage to Zanzibar to the crew and passengers of the slave dhow that he had captured a few days previously and burnt, having first taken out of her the little cargo she had on board. Referring him to my Zanzibar charterer, this person demanded ten rupees a head for them. But he afterwards offered to take them for three bales of their own cloth. The captain would give

nothing, but offered to send provisions on board for them. So it was agreed we should take them on those terms, and twenty-nine people were placed on board with provisions for four days! But I had to keep those same people in food for fifteen days!

There can be no doubt that the ship of war had good reasons for capturing and burning this vessel; but it does seem strange to the ears of an Englishman, when he is informed that the commanding officer of a gun boat, or a gun brig, or of any cruiser, can make an Admiralty court so as to be able to capture, condemn, and burn any ship he falls in with that he considers has broken some law, of which the persons who trade on the coast have never before heard. It sounds like a *Trent* affair. The capture of this bungalow is nothing to me; but on my arrival in Zanzibar with the crew on board, I was informed by merchants both European and Native, that the bungalow was fitted out for a voyage to Madagascar for rice, and had cargo on board for the purposes of barter there. And that she had proper papers from the Sultan, showing the nature of the intended voyage. Further that she was commanded by her owner, the son of one of the oldest and most respected of the Zanzibar knuckadars (native captains). A person who has never been on the east coast cannot conceive the bitter hatred with which the natives look on the English, for the manner in which their vessels are condemned and burnt without any appeal to a shore authority.

The marks for going into Mozambique are not to be made out by a stranger, and I am afraid I can do but little to assist one with directions. The Table Mountain is elevated but very little above the land forming the coast line; and yet if seen it is very remarkable. The coast for forty miles north of Mozambique appears clear of danger to about two and a half miles off it, and a ship coming down along the coast will always see the buildings at Canducia and Cabaceira, and as she approaches Cabaceira, will see the island St. George ahead, and the Flagstaff on the Fort of Mozambique over Cabaceira Point. Tree Islands will easily be known and the shoal water can always be seen on the reefs. The only danger is the strong southerly current that always sets across the harbour's mouth, but this can be avoided by rounding Tree Island Reef close, and hauling up for the fort. There is a remarkably large tree on the esplanade, south of the fort, which will be easily seen if looked for. This tree kept just open of the south-east angle of the fort will lead up in mid-channel, to the reef extending from the north angle of the fort. When the THREE INSHORE ARCHES of the pier are open haul in round this reef in five and a half fathoms low water springs. I do not think the Leven bank lies so far off the fort as the chart makes it appear, as with the ship's bow in five feet her stern was in eighteen and a half feet when swinging. Supplies are not easily had at Mozambique, beef may be obtained at about fivepence a pound, but vegetables are very scarce, and fresh water more so.

We left Mozambique on the evening of the 27th February, and made Latham Island on the morning of the 3rd March, and steered

up for Raskizimbaz, giving that point a berth of about one and a half miles. As we came up with the cape I found the reef extending much further off than I expected, I had to keep the ship off S.W. by W., and steamed out alongside of a reef nearly dry, to a distance of about four miles from the land. I could not see distinctly where the reef ended, as there was a strong tide rip, with ripples, and much glare; but it certainly reaches off nearly four miles. After passing this reef, we hauled up for Kwally Island. We passed all the islands close to the shoal water on the western side, which was easily seen from the foretop. After passing Choomby island, a ship ought to haul in to the N.E., till Choomby bears S. by W. ½ W. or S.S.W., and then steer about N.N.E. for the town of Zanzibar. This course will carry her up to two buoys, one red and the other white, which mark the channel. After passing those two buoys (which by the way are too small for the purpose) there are no dangers, and a ship may anchor anywhere off either face of the town. But the water is deep, unless close in shore. We moored in thirteen fathoms with the Point about S. by W. The heat was more oppressive during the first week in March here, than I have ever felt it either in the Red Sea, India, or the Persian Gulf.

I had a slight sun-stroke the first day I was on shore, from too much exposure, and had a very severe attack of fever afterwards, that did not quite leave me until I was away from Mozambique the second time. Some of my crew caught fever on the coast, that remained on them till they arrived at the Cape. The Sultan's fleet was lying in the harbour dismantled, consisting of the old confederate cruiser "*Shenandoah*," two small steamers, three sailing frigates, a corvette, and two ten-gun brigs. Beef and mutton can be procured here at about fivepence a pound, if no ship of war is in port. But if an English man-of-war is in harbour prices go up fifty per cent. Yams and sweet potatoes are moderately cheap. Coolie hire is eight men a day for one dollar. But every article of marine stores is very dear, if to be had at all. Light blacksmith work can be done at the French Mission. They have a small five-horse power engine, that drives a lathe, drills, planeing machine, etc. They repaired a broken air pump trunk rod here for our ship. This mission seems to be well conducted. It is managed by two priests, a lay brother, and nine sisters of charity, The mission house is an immense building or rather a series of buildings, and contains an hospital with beds for about twenty sick. They are attended by the sisters of charity, and some of the Christian converts. One of my sailors was ten days in hospital, and he describes the comfort and attendance as better than in any European hospital he was ever in! The lay brother is the blacksmith, and he has about twenty boys and young men, all African, with him in the shop. The older boys are very handy with the machinery, and work very well at the forge. The lay brother is also a musician, and he teaches about twenty boys to play as a band. There are also some carpenters among them, and some of other trades also.

This mission is the most useful establishment in Zanzibar. I cannot

help contrasting this French mission with the Central African and some other of our English missions. Bishop Tozer has a mission house, and has a school with some thirty boys and some girls, whom they are educating in the European fashion, and teaching them to sing hymns and psalms, and they are to be educated as missionaries to go into central Africa. Can any one doubt, which is most likely to be of service in spreading civilization among the Africans, the pupils of the French Mission who are blacksmiths, carpenters, or tailors, etc., or the boys of the English mission, who can only sing and read. The slave trade is in a very flourishing condition about Zanzibar. While I was in the harbour I saw two large bungalows full, standing across from the island of Choomby to the northward. They passed across our ship's stern. We completed our loading on the 7th April, and started on the 8th for Mozambique, having H.M. political agent and his family on board as passengers.

Off the island Kwally we spoke H.M. ship "*Nymphe*," proceeding up to Zanzibar. It is a great pity that she did not go in from the northward, for she must have fallen in with several slave dhows, which would have been good and lawful prizes, their slaves being actually on board. If the British government is really in earnest in wishing to suppress the slave trade on this coast, why do they not place a small steam sloop with six or eight small gun boats, or even steam launches, under the orders of the sloop, at the disposal of the political agents at Zanzibar, Muscat, and Aden? Those old gun boats that were hauled up at Haslar would answer very well if the white ants have not eaten them up. The above agents would be able to give information at a proper time to the naval officers, and the *slavers* could be captured as soon as they embarked the slaves. An instance occurred in March last at Zanzibar, of a number of northern Arabs mustering well armed, and marching upwards of two hundred slaves a few miles out of the town, to embark them in two dhows for the Persian Gulf. The British president reported this to the Sultan, who immediately ordered five hundred soldiers to go and stop the embarkation and to arrest the dealers. But the soldiers were so long turning out, and made so much noise and *music*, when they did march, that the slaves were embarked, and the dhows across *our* stern, before the soldiers reached the place, and when they did so, they found a number of Arab chiefs taking couner at shamgar (*i.e.* at a picnic, eating in the country), and of course fraternized and reported what they saw upon their return.

The northern Arabs are accustomed to sail in convoy when they are on slaving or piratical expeditions; and they are all well armed. Therefore, if boats are sent to attack Arab dhows, they should be well supported, for the northern Arabs can use their weapons and will fight well. A boat's crew might easily be lost, if exposed rashly without support. I mention this because I have heard opinions stated by some officers, that a gig's crew could always capture a slave dhow, which is quite a mistake.

After passing the "*Nymphe*" we stood down for Cape Kizamkas, as I wished to have another look at the reef, and I am of opinion

that there is a reef extending upwards of three and a half miles from the shore, where the chart makes it one mile. After passing the south end of Zanzibar, I steered for mid-channel between Latham Island and the N.E. point of Monfia Islands (Moresby Point), and found a current setting to the westward, for we made the point right ahead, when we ought to have been fifteen miles outside of it. Between Monfia and Mozambique, we found an indraft, or a westerly set all the way. Our distance from the islands was from five to eighteen miles. It blew fresh from the south, and we had a drain of northerly current all the way, but found it strong between Pemba and Mozambique. I found the *big tree* I mentioned, a capital mark, as we went in at dead low water and could see the shoals. We ran down with the west end of St. Jago Island, in line with the east end of St. George's Island, till we were in mid-channel between Tree Island shoal and St. George's. Then steered W.S.W. *true* till the large tree came open of the S.E. angle of St. Sebastian Fort. Then changed course for the fort. The channel between the fort and Harp Shell sands is narrow, but there is plenty of water. We had three casts, of seventeen fathoms, no bottom within seventy-five yards of the reef off St. Sebastian Fort. We moored in six fathoms off the fort.

I found a new Governor-General at Mozambique; the one I brought down was superseded a few days before my arrival. Several of the soldiers were down with fever, and unless they are quick in sending the expeditionary force to Testi, they will not have many to send. On Sunday and Thursday Evenings the band plays in front of the palace, and availing myself on Thursday Evening of sufficient leisure to attend to it, can pronounce their music very fair. It was highly interesting to witness the negroes and negresses dancing in the dusty road, to the number of about one hundred of them all dancing in time, and certainly, if jumping and moving the legs and arms quickly constitute dancing, no set of people ever danced better, or with more vigorous enjoyment. One girl especially attracted our attention; a handsome, well-shaped negress, about eighteen or twenty years old, not much encumbered with dress, for this was a mere frock made of bead bag stuff, reaching a little below the knees. Whether she was conscious or not of her attractive powers, be it not said, but she adopted the middle of the road for her display, and moved gracefully and well to time. She sprung about three feet from the ground, and threw her right leg out, at right angles to her body, as she advanced a few feet, and as she retreated, she threw her left leg out behind in the same manner. I was satisfied that she would have made a sensation in London if I could have brought her there. She might, indeed, have rivalled the celebrated French actress for kicking up her heels, and so completely had she won my good opinion, that I mentioned to an Arab friend that he might purchase her for me. But suddenly I bethought myself I had the Judge of the English Vice-Admiralty Court as a passenger on board my ship, and being at hand, he gave me a hint that *it wouldn't do*. However, I am quite sure it would be a good spec. for Barnum, or any one else, to get that graceful, active

negress to dance before the most refined spectators that could be found in Europe or America.

On the 16th of April I was surprised to see six or eight small craft come in, all with very large sails, and each one towing a boat as long as herself, and sailing very fast. I found that these were slave boats, that conveyed the slaves from place to place along shore, inside the islands and reefs, and also carried them off to the slave dhows in the offing. These sailing boats draw very little water, and creep close along shore. They sail much faster than any ship of war's boat, and the row boat they each tow, will pull from eight to twelve oars of a side, and go also very fast. As the whole coast from Mozambique to the north part of Pemba Island is fringed with a line of islands and reefs, the slave traffic is carried on principally in these small, but fast sailing dhows, as far north as Monfia, Zanzibar, or Pemba Islands. At these places they are transshipped into the dhows of the Northern Arabs. Therefore, if a ship of war were to cruize off the north end of Pemba, thence to the north end of Zanzibar, keeping out of sight of land in the latter part of the day, and being close in at daylight with her boats all ready, she could not help catching lots of the dhows filled with slaves. But for effective boat service, on the east coast, steam launches with good awnings would be really necessary, and would soon be felt by the trade.

The weather was very hot in Mozambique. On the 17th of April, we left it, and steamed down the Mozambique channel against a strong S.W. wind as far as Cape Corrientes, thence to the southward we had fine weather, Nothing of consequence occurred till the 23rd, when just after sunset, and before the lamps were lighted, I was going into my cabin, and fell down the lazarette scuttle, which the steward had carelessly left open. I was very much hurt, but fortunately no bones were broken. It is wonderful how careless people are about hatches. On the 27th of April we passed Agulhas, and anchored on the 28th in Simons Bay for coal.

Having had some defects in the engine room made good at Simons Town, we took the ship round to Table Bay, and secured her to the Government moorings just laid down inside the breakwater. We had a very heavy gale of wind on the 6th and 7th of May. During the night it blew very heavy and the sea rolled up to the top of the breakwater: but the ship (1,409 tons) rode very smoothly and easily. The moorings are two four-ton anchors with three inch chain. They will prove invaluable to steamers, and I shall never fear going into Table Bay for supplies again at any time of the year.

While the ship was in Simons Bay, one of those rows now so common in the Merchant Service took place. A coal trimmer named A. Shaw, of very powerful build and frame and most forbidding aspect, was shipped in Bombay, with the other portion of the crew. He began to give trouble a few days after leaving Goa; but went on in an impertinent manner till the ship arrived at Zanzibar. Before the ship's arrival there he struck work, and was landed and sent to the Fort, the only prison at Zanzibar. Two days in that prison were sufficient for

him, and he rejoined the ship and went to his duty, doing it in the same contumacious manner as before. We arrived at the Cape on the 28th with the chief engineer very ill. In fact the doctors said that he was unfit to go to sea. However he wished to go on in the ship, and was sent by me to Cape Town with some moulds and drawings, to replace some defective parts of the machinery. He returned to the ship on the 1st of May, and while in bed, quite knocked up with his journey, the man of the Zanzibar, Shaw, went into his cabin, took hold of him very roughly, and said give me my discharge, or let me go on shore. The man Shaw was told the captain was not on board, and that strict orders were given by him that no liberty was to be given, so that nothing could be done for him till the captain returned. The next morning (Sunday) Shaw came with his bag and effects to the gangway and told the chief mate he was going shore, and was to be discharged. The mate said if you go on shore you go without my leave, and as you are not one of the deck hands I shall not stop you, but shall report you to the captain. The man then went into a waterman's boat and went on shore. I arrived at Simons Town about 9.35 a.m., on the 3rd, Monday, from Cape Town, and found the man on shore, and ordered him off on board. He went off in the same boat with me, and as soon as he was on board I ordered him to return to his duty. He went forward, and I ordered the fires to be lighted ready to get under way, and went down to change my clothes, when about a quarter of an hour afterwards the chief mate came and told me Shaw had again gone into the chief engineer's cabin and struck him, and that the officers had been obliged to go into the cabin and drag him out. I called him aft on the quarter deck to investigate the case, when he again rushed at the chief engineer, and it took the united efforts of myself and chief mate to stop him from striking the engineer. He then turned on me and the mate, but I called the officers and engineers and prevented him striking any one. I then called a waterman's boat to take me on shore to complain to the Police Magistrate, when the man took hold of me and said that he would go on shore in whatever boat I went. The officers dragged him away from me, when the fellow pulled off his coat, and said bring the best six men in the ship and see if you can stop me.

Just at this moment the commander of a ship in the bay came alongside, and I told him I wanted to go to a Magistrate, and asked him to give me a passage on shore. He came alongside for that purpose, and I was going down the ladder when the man Shaw broke through the officers, ran down the ladder, and seized me by the collar saying "me first into that boat"; my hat was knocked overboard and if the other ship's men had not caught hold of me, I should have gone overboard myself. When Shaw collared me, my three mates ran down the ladder, and pulled him away. As soon as I was in the boat, Shaw turned round and seized the chief mate, and said now (using an expression unfit for print) I'll drown you, and threw him between the ship's side and the accommodation ladder. The mate caught the side of the ladder, and one of his legs went through it, the other mates pulled

him on to the ladder again, when Shaw seized him again by the two breasts of the coat, and said (as before) nothing can save you now. I'll drown you, come along with me, and he made the most violent efforts to drag the mate from the ladder, and stooping down to freshen his hold on the breast of the mate's clothes, he rose himself up with his whole force, and the coat skirt and all gave way, and the ruffianly scoundrel fell backwards and went head foremost overboard, about six feet from the ladder. He could swim like a duck, but I ordered a life-buoy to be thrown to him, and sent my gig and a waterman's boat to pick him up. He was taken before the Magistrate, who remanded him to Cape town.

On the ship's arrival there, of course I appeared against him. The evidence was clear, the torn blue coat (new) and waistcoat were produced, myself, chief engineer, and mate were there, who had each and severally been assaulted, and the Magistrate sentenced this scoundrel to four weeks' imprisonment, and ordered his wages to be paid in full. I have been more than thirty years chief mate and master, and I never saw such a murderous assault, nor such a deliberate attempt to commit murder, as in this instance of trying to throw the chief mate overboard. The mate cannot swim, while I have seen the man Shaw upwards of two hours at a time in the water. Further the chief engineer was very ill. I myself had fallen down a hatchway five days previous, and was unable to get into a boat or cab without assistance. My chief mate was just recovering from Mozambique fever, and while in this state, this scoundrel seized the opportunity of assaulting us!

The above is a fair specimen of the way the law is administered by Police Magistrates, no matter how clear the case of assault, embezzlement, or any other serious offence against the man who is called a seaman, the *minimum* of punishment is invariably adjudged. But when the officer is brought up for assault, which in most cases is in self defence, the maximum allowed by law is enforced. So much for British justice awarded by British Magistrates abroad. The officers of the Merchant Service feel, that as the law is at present administered, *they* as a *body* are beyond the pale of it. The masters of the Merchant Service do not ask to have more power placed in their hands than the law gives them, but they ask to have that law put in force against insubordinate seamen, as it is against officers when they are convicted of breaches of it.

In all parts of the world, the law is more equitably administered when barristers sit as Police Magistrates, than when men not trained to the law are on the bench. In the above case, the coal trimmer was guilty of five different assaults, and assaults upon three different individuals. But the Magistrate inflicts the very least punishment the law gives him power to inflict for one assault, and dismisses the other two persons who have narrowly escaped with their lives without any redress! Besides, the wages are ordered to be paid in full, and I lose my hat, and my chief mate a new blue uniform coat, and no compensation allowed or made to either of us.

The above case is by no means an exception to the rule, seamen, or

rather the men whose names are on the articles as such, are acquitted, or meet with the smallest amount of punishment for mutinous conduct the discretionary power of the Magistrate admits of, while the utmost rigour of the law is enforced against masters and officers.

JAMES KENNEDY, Lieut. R.N.R.

[It would be well for the Board of Trade to look to *this* administration of the law.—ED. *N.M.*]

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## THE PORT OF LIVERPOOL.

THE town of Liverpool is divided into sixteen departments or wards, each of which has its one alderman and three counsellors. Every man twenty-one years old having occupied a house or dwelling for three years in the limits of the borough, and having paid poor rates of the parish, is entitled to have his name on the list of burgesses and to vote. The sixteen aldermen and the forty-eight counsellors form the town council, one third of which is annually renewed. Their prerogative is tolerably extensive, and entirely independent of the central government. The Queen may dissolve a parliament but she can never depose a municipal council. It has the power of nominating certain functionaries, to manage the police of the town, to pave and light the streets, to watch the public health, in a word, to regulate all matters concerning the interests of the residents. It is a principle of the English constitution, that the several communities have themselves the right of administering their own affairs as long as they are in accordance with the law of the land. Now the towns are but collections of inhabitants; and it may well be supposed that they know best what suits them, rather than strangers who might no doubt be animated with good intentions but still be very deficient of local experience. And as towns have every thing to gain or every thing to lose by the good or bad management of their resources, it has been justly considered that their own government at least belongs to them and should be in their own hands.

But the municipal authorities of any place in England have nothing beyond the general laws and the Acts of Parliament for their assistance. The mayor is chosen by the counsellors and aldermen, from among these latter. His election is for one year, but he may be re-elected, an event however which does not often occur. It is not easy to fully appreciate the prestige which is enjoyed by a veteran and esteemed magistrate. The mayor represents the town itself, every one respects him, and sees in him all the ideal and collective dignity which he represents. On no pretext whatever is he deposed by the crown. Parliament only can deal with a mayor who may have neglected his duties; but this is a point of authority rather obscure and often one of controversy among the English. But it was only the other day that

the Mayor of Cork, in Ireland, was accused of making a Fenian speech at a public banquet, and as the Fenian agitation occasioned considerable uneasiness, the attention of the House of Commons was called to it, which at any other time might not have been done, and a disability bill was brought against the Mayor, and he was cited to appear at the bar of the House of Commons. But without any discussion taking place the Mayor resigned the chair.

This local government holds its sittings at the town hall, a building ornamented with a portico on four columns, built by Foster in 1795. One part of this town hall is dedicated to business and the other to amusement. The Council-room of the municipal authorities is on the ground floor, and a handsome staircase ornamented by a colossal statue of Mr. Canning, by Chantry, leads to the banqueting-room, which contains a portrait of George III. by Sir Thomas Lawrence. This building forms the official seat of the municipal authority, but the ordinary justice-room of the town is held in another building, remarkable for its handsome architecture, and which contains various public offices, standing in Cornwallis street. Here the municipal council assembles, forming themselves into eight committees and many more sub-committees, each devoted to a special branch of business. But we must not omit to add that all these duties, which require much time and careful attention, are entirely honorary. Gentlemen of high standing and ample fortunes render their services without cost to the public.

We may leave these committees to their several duties, and take a general view of the mechanism by which the free government of towns is carried on. The expenses and their realization are main points in all municipalities; but in a town like Liverpool, possessing estates and buildings to the value of £3,000,000, what is termed the Finance and State Committee is evidently charged with a most important and responsible duty. There is also a Watch Committee charged with preventing and extinguishing fires, administering the law in reference to weights and measures and the lighting of the streets. This last is by no means a trifling duty, for in 1868, Liverpool had 6,105 gas lamps, and their expense amounted to £21,367. The same Committee regulates the routes of the omnibuses and public vehicles, makes its visits to the houses of dealers in marine stores, brokers that might be suspected of harbouring stolen goods, etc., its jurisdiction in fact extends to all parts where the public safety requires it. It is by no means an easy matter to preserve order where emigrants and foreigners are perpetually frequenting, where Irish and Welch come and go, leading a wandering life. And yet the annals of the police shew that the offences do not exceed the ordinary proportion. And be it said with justice that Liverpool is the only town of the United Kingdom where they have been enabled to exercise a wholesome watch over the proceedings of returned convicts or those gentry who are known as ticket-of-leave men.

The committee of public health, called the Health Committee, has for above thirty years had much to do in contending against various evils. For forty years Liverpool has been justly entitled to be con-

sidered the most unhealthy town of all England. In London, the great Metropolis, overwhelmed by people assailed by sickness of all kinds, the average of life was then 26½ years, while at Liverpool it was only seventeen years. But the causes of this fearful mortality were not far to seek. The position of the town, open to the sea breeze as it is, was no cause of its insalubrity; but an overcrowded population, shut up in narrow streets, sleeping in cellars, and living during the day in a humid and infected atmosphere. The work of the scavengers was neglected, and the cleansing of certain bye-ways and obscure alleys was abandoned to the care of the passing shower.

The municipal council, in order to meet this state of things with the necessary energy, had to go to Parliament, and by the Sanitary Act of 1846 were invested with authority to call to their assistance a medical officer and an engineer, and set to work in earnest to cleanse their Augean stable. It was quite time that they did so, for scarcely had they commenced their Herculean labours when the famine commenced in Ireland, and Liverpool was resorted to by multitudes of the starving population of the sister isle.

These unhappy beings, without shelter of any kind or the means of living, soon found their way to those cellars which the authorities had constructed. It was then that the streets were thronged with living spectres silently imploring public charity. Many who went to their relief took the fever and died. It was calculated that at one time there were 100,000 Irish in the town, consisting of men, women, and children, in want of food.

With such an invasion the dwellings of the poor had much to undergo. What would this not have been if medical science had not contended with some of the most formidable cases which threatened the public health. But Liverpool had just escaped this calamity when cholera appeared, and the measures adopted, under what was termed the "Sanitary Cut," no doubt warded off much of the consequences of this epidemic. In 1861 a new enemy appeared in the shape of typhus fever, from whence it was not known. But the evil was beneficial, for it was a warning to both rich and poor of the danger at hand; one party by neglecting to observe the commonest principles of health, the other by not turning their attention to certain parts of the town, and permitting those places to become the perpetual haunts of death. In fact, from the appearance of typhus might be dated the fact that it became absolutely necessary to assail and destroy the very hotbeds of the disease. The safety of the whole population was thus at stake, and certain infected houses which belonged to the town were demolished without mercy. I have some models in wood of some of these old houses in the office of Mr. J. Newlands, the principal engineer of the Medical Board, that have been preserved as memorials of those terrible days. The access to these dens of misery is by descending a few steps into a kind of cellar, in which a whole family lodged, that communicated with a narrow courtyard, darkened by rotten brick buildings successively like the yards following each other. There are besides more such places as

these that shock the perceptions of the visitor; but there seems to be hopes that they will not long be allowed to remain such.

In a part of the world where nothing is left to chance it is not so easy as it would seem to be, to make healthy the dwellings of the poor, and the Municipal Council have frequently serious obstacles to their proceedings. An Act of Parliament, known as the "Sanitary Amendment Act," of 1864, marks out the course to be followed. The Medical Officer of Health visits the houses of the town and in his report points out those which should be either destroyed or modified from reasons of salubrity. This report is submitted to the Town Council and a Grand Jury of the place. The town Clerk then sends to each proprietor of the condemned houses the notice of the Medical Officer, pointing out the nature of the alterations required, and when the Grand Jury will have them under consideration. At the time appointed the Grand Jury sends inspectors to make reports to them on these houses: their reports are then examined, and decisions made. If a house is reported unhealthy, I had almost said culpable, the engineer is directed to prepare his plans, so that the decision of the Council may be carried into effect.

In case where the proprietors of these houses oppose the works required, they are allowed to appear before the council to substantiate their objections: but they yet have to submit to definite result. A system like this may appear complicated. Yet it works well, and the number of houses entirely removed or improved every year is considerable. Perhaps the council discuss with the proprietor of a condemned house the amount of compensation he should have, and if they are unable to come to a conclusion, arbitration is called in. But the council after proposing the remuneration which appears reasonable, has the right of proceeding with the work of demolition. In 1867, the grand jury gave orders for the destruction of three hundred and eighty-four houses and the alteration of one hundred and eight others.

There are several causes which tend to make Liverpool an unhealthy place. As manufactures are but few there, the working population resort to the port. It is commerce and not industry that is the source of work. Now commerce is subject to fluctuations, which in their turn depress and raise the price of labour. The most numerous class of workmen in Liverpool is that of the men who find employment in the docks. Some bodies of men are exceedingly well organised, for instance, those who discharge bales of cotton, the cotton porters, who work in gangs having a captain or leader at the head of each gang. Very often this person is selected from the lower class, and as he knows how to concentrate the monopoly of work in the circle of his own friends, he writes to his old companions telling them that provided they know how to read and write like him they will never want work. and may improve themselves like him. The wages of the captain of a gang vary from twenty-four to twenty-six shillings a week, and this sum is a sort of attraction enough to excite their desire. Many for this abandon their comfortable cottages in the country, and hasten to Liverpool where too often they meet with disappointment and distress,

The arrival of cotton is fraught with all kinds of results which in a most deplorable way affect the earnings of the porters. But a few figures will convey some idea of the cases under consideration. In 1860 and 1861, before the war between the American States of North America, the number of cotton porters amounted to 6,000 or 7,000. In 1862, there were not more than 4,000 or 5,000 at Liverpool, and even these had much difficulty in getting employment. Again, in 1860, 348,000 bushels of grain were entered in the port of the Mersey, and in 1862 not more than 16,000.

There is another branch of commerce which employs a good many hands in the reception of cereals. The discharge of grain is performed by corn porters, young men whose athletic form and indomitable powers it has often been my good fortune to admire. Unfortunately the employment has been failing for several years, and the wages have come down so low as about eleven or twelve shillings a week. Other dock labourers may be divided into two classes, those which have regular constant employment, and those who are only occasional, or when required. As a matter of course, these last are the most difficult to please, and so severe is their condition that they must be paid daily. It is confidently reported of them that a third of their small pittance of wages, as soon as received, at once goes to pay their score for beer and liquor. Verily, the less that the English labourer eats, the more he drinks. Of a population of half a million of inhabitants including non-residents at Liverpool, there are seventy to eighty thousand who live at the mercy of chance.

When these unfortunate people have so much difficulty in obtaining for themselves and families their daily bread, it is impossible that they can go to much expense for their lodging. Hence, they dwell in cellars, or places where they are received from their miserable walks, and a trade more or less profitable arises from this miserable source. In the common resorts of the poor, the principal dwellings are underlet by their residents in chambers to different families of labourers. But such a state of things gives rise to a serious evil which has attracted the attention of the Board of Health. The practice of too many persons lodged in the same house is, indeed, well termed "overcrowding," and this practice, as prejudicial to health as it is to morality, has been vigorously attacked of late years.

In back courts and low streets of Liverpool the houses are mostly of three stories, and as they are built back to back, their windows can only open in the front, and there is then a difficulty in ventilating their apartments. It is not difficult to perceive the state of things to which this must lead when they are crowded with lodgers. Some witnesses have deposed to the most disgusting scenes in them. A widow and her daughter occupied one of these houses in the capacity of proprietors, and to cover the rent of the house, the cellar was let to two women, the first floor to a family consisting of a man and his wife, a son of twenty-two years, and a daughter; the room over them to a woman and three children. It was also said that in another room, underlet by an old woman, there was a bed on the table, another

beneath it, and a third in a cupboard used for coals. In places like these, the living share them with the dead. But the promiscuous companionship of sexes in these garrets of course produces a most pernicious effect on youth. There is no need of exaggeration. Habit, it is well known, hardens the senses, and a young woman of the working classes does not necessarily lose all self-respect from being present at scenes of night that are revolting to others of more delicacy. Certainly, such scenes are not of a nature to encourage either a virtuous mind or the dignity of the person.

Another inconvenience of these dens, wherever the same room serves for eating and drinking, bed room and all for a whole family, from such a place as this, the confusion, filth, and pent-up space must drive the inmates to the street. They rush from their roof let the weather be fair or foul, the street itself affords them at least a relief to such misery. But then how much are they exposed to from the change! In the street at every step is to be found the mont-de-pietâ and the ale house. On Monday before six o'clock in the morning it is common to see at the door of the money lender a crowd of people waiting to see it opened: there they convert all they have into money, dress, linen, articles of furniture, every thing. But the produce mostly goes to the pocket of the publican, for wretchedness generates intemperance. A large number of people of both sexes, and young also, who find work on the farms in the outskirts of Liverpool, are accustomed to pass the night in the vicinity of Wright Street, a low quarter of the town, and cling to the public houses even to their time of closing. It is then that they repair to their cellars, where, for a miserable stipend, they are permitted to sleep on a bed of straw or shavings. It seems scarcely credible that the town police have found as many as 20,000 persons thus disposed of, sleeping any how in these subterranean places. One marvels how it is they are not suffocated by the stagnant atmosphere. But next morning the drunken fit is thrown off, and with the exhilarating effects of the fresh air, the work in the country is resumed. However, experience has proved that these accumulations of wretchedness have encouraged the germ of contagious disorders.

Doctor Trench, a medical gentleman of Liverpool, employed by the Town Council to enquire into this question, has collected some curious results on the causes of mortality in large towns. And thanks to such researches, we are no longer left to conclude that the number of deaths is left to chance or the decree of Providence. The duration of life depends on exterior conditions, and these are those of nature modified by certain laws.

A few degrees of elevation or depression of the thermometer, the quarter from whence the wind is blowing, the purity or foulness of the air, the space allotted to the residents of houses, the nature and quality of food, all and each of these exercise an influence on public health. Scientific research can also determine the number of victims sacrificed annually from the non-observance of certain laws. In England, says Dr. Trench, the mortality is 22·2 for every hundred inhabitants per annum, and in the great cities 24·1. At Liverpool it

is 36·4 to 29·6, so that, if Liverpool was as healthy as the generality of England, she would have had in 1837 a saving of 6,737 lives of men, and if this same were only as healthy as London, that saving would have been 5,740 lives.

To the sad list of evils which thin the ranks of the population, a mysterious share must be assigned to Liverpool in producing it. Is it on account of typhus? But the causes themselves in the midst of them all are readily discoverable. If it be not always known whence it comes, the causes from whence it arises easily shew themselves. The summer of 1861 had been for Liverpool a season of distress. The blockade of the States of South America and the cotton famine which then followed, threw a large number of porters out of employment and typhus appeared but a few months afterwards. The general social condition and mode of living is nearly allied to the nature of our evils. The English medical profession considers that there is a great difference between typhoidal fever and real typhus—one is the enemy of the rich, and the other the poor. The first develops itself especially in hot months of summer, and attacks those who are well fed, while the second, on the contrary, selects the cold weather, and finds its victims among a population weakened from the want of proper nourishment. From 1862 typhus was found at Liverpool in parts, the limits of which were easily traced. Dr. Trench publishes annually most interesting letters in which the different parts of the town where it prevailed were distinguished by red colours. Thus, the districts where the disorder is prominently found, are at once evident to the observer, and these localities of death, and they are invariably in those long narrow streets lying north and south, secluded from the sea breeze, intersected by damp courts and winding lanes, filled with a crowded poor population.

One of these streets, called Albert-street, being attacked with typhus, it required two or three years to get clear of it. The air, light, water, and space are the causes which removed the plagues of Egypt. But there is, nevertheless, here an object against which it is necessary to make every effort on the part of the authorities; and that is the crowding of families into rooms which are too small to receive them. How can these be entered against all hazards? The respect paid to an English home is well known for its inviolability. The roof of the poor man is quite as sacred as that of the rich. But as danger is as bad in a house as any where else, the authorities do not hesitate to furnish themselves with implements adapted to the circumstances such as that of the law of 1866. No doubt all classes of society have an equal right to put aside the nuisance from which they may be suffering, and which may have taken up its abode in certain filthy houses to spread over other districts. Hence the dread of its power becomes the motive for its abolishment, and thus an arbitrary measure is submitted to although unlike an English process; but its effect was to reduce the mortality at Liverpool.

Hence the medical inspector having seen where a certain amount of cubic space is deficient for the circulation of air, for every person

living in a room, points out those to the Board of Public Health which he considers are not according to law. Considering that such proceedings might be unheeded unless they were followed up, the authorities take immediate steps to insist on their being complied with. The town is divided into eight districts, to each of them an inspector is sent, on purpose to measure and note those houses having rooms that are occupied by more than one family. It must not be forgotten that English customs are peculiar to themselves, and that it is only in certain parts of the town inhabited by overseers, workmen, and labourers that the dwellings of these people are found. The eight inspectors have books in which are noted the height and area of every room in the lodging houses, the number of persons which might dwell therein, and communicate the results of their enquiries to the council. These particulars having been duly registered, the number of adult persons that should occupy them is determined and communicated to the governing body of the town, on which these details having been duly registered two papers are prepared, one stating the number of rooms which should be closed in the houses of the principal lodgers, the other to be fixed to the doors of each of the rooms stating the number of persons authorized to occupy them. To secure the observance of these notices, the inspectors have a right to visit all the registered houses where it is suspected that they are unheeded.

The presence of a public evil has prevented the resistance of such a measure. The English workman will throw a constable out of his window who shall dare to enter his dwelling by night; but the visit of one of the committee's inspectors charged with the preservation of the public health is entirely respected, as it is well known that his duty concerns the preservation of the health of him and his whole family. If such a person were not to enter his door, death itself would certainly do so. The medical officer, it has nevertheless seemed to me, regrets an inspection of which he does not dissimulate the grave responsibility. On visiting the poor, the authorities in some degree undertake to mitigate the sufferings of the lower classes. Certainly it is not for mere pleasure that the Irish—the general labourer—resort to Liverpool and occupy unhealthy abodes. While they are obliged to have recourse to such dwellings, and no better either of order or position are provided for them, the best regulations in the world can but slightly remedy the causes of mortality. The municipal authorities well understand the subject, by proposing themselves a plan for the construction of model houses, and spending a sum of twenty-one thousand pounds in the purchase of ground for the erection of workmen's dwelling houses.

There can be no doubt that by improving the kind of dwelling the moral character of the occupier is also improved. But another obstacle seems to have been in the way of the authorities, and this was the small sum they could afford. A porter for instance earns twelve shillings a week: but he has a wife and perhaps three children, and he can only allow two shillings and sixpence a week for his lodging. It is in vain that capital houses are built for him even at small cost,

for they are always too dear for him; and he is content to be badly lodged at a lower price. Now the lowness of wages in the rich town of Liverpool is a fact over which the corporation disavows all influence. The low price of work contributes on one hand to the employment and well being of the workman, and on the other to the nature of the work which demands neither the exercise of art nor the toil of apprenticeship. The first comer provided he be strong is able to transport merchandize, and that is pretty nearly the only mode of gaining a livelihood in this great metropolis of commerce found by a class of men who are at once ignorant and yet full of vigour.

The health committee whose powers are very comprehensive meet and hold their councils in a room furnished with a row of desks for reporters. Publicity in fact has so far penetrated into English custom that everything is subjected to the right of criticism. The town council is a kind of local parliament, whose doings are as warmly discussed by the Liverpool papers as those of the House of Commons are by the London journals. That which Fox called a government with open doors and windows, could only be found among a people sufficiently masters of themselves and their affairs, so as to know everything that is said and done in the rooms of government. Among the other boards which divide the municipal duties the above-mentioned committee has the duty of the markets to regulate and the care of seeing to the quality of the food; another has the charge of the library, museum, and education. The public library of Liverpool is rich in rare and useful works, and in the lecture room are seen students and workmen in their rough dresses seated at the same table. The museum which adjoins the library contains a fine collection of animals preserved as well as fossils, and arranged in convenient manner so as to facilitate the study of natural history and geology, all distinguished by proper labels, to which reference may be made in books at hand for the visitor, describing the nature and habits of the animal. Other rooms also contain an interesting collection of the antiquities of Lancashire and of old English tiles. Two names which rank high in political contests, those of Mr. Gladstone and Lord Derby, appear among the donors to the museum.

But as to schools they seem to be only found in the poorest parts of the town. The north school which I visited conducted by Mr. Rathbone, a member of the council, is divided into two departments, one for boys and one for girls. All the pupils are evidently belonging to workmen, for some are shoeless and dressed in rags. It may be supposed that the education of these is simply sufficient to raise them above the condition of their parents. I don't know but their bold manner in their class was somewhat striking They were taught reading, writing, and cyphering, and certainly an examination which took place before me was highly creditable to them. At the termination of school, the bell having rung, the pupils left their forms in proper order, and marched off in single file. At the moment when I entered the court a troop of musicians selected from among the scholars themselves, some with their brass instruments and others with

drums, played the Marseillaise, which was followed by God save the Queen.

Another Committee appears to be charged with supplying Liverpool with water, and to superintend the baths. It is called the Water and Baths Committee. The reservoirs appropriated to contain the drinking water measure nine English miles in circuit, and it is not easy to imagine the character of grandeur which is attached to this very useful work. Most of the well-to-do English have their own baths at home, and in most of the houses every thing appertaining to them is provided already by the architect. But this is not so with the class who occupy lodgings, such as the working class. And the Town Council recognizing the rights of property every where, considered it right to establish public baths, the oldest of which are the St. George's Baths opened in 1822. There are four of these institutions at Liverpool. However the St. George's baths are divided in three compartments—the plunge or tepid bath, the shower bath, and the warm water bath. Every one pays on entrance, but the tariff, whatever it might yield, never pays the expense, and the town has to make up the difference. The service which they do to the public health is always the answer to any remarks on the score of economy. To these baths are attached public washhouses where for a small trifle women can wash linen. Experience has shewn that the class for which these advantages were intended is that which uses them the least! The wives of English workmen it seems are accustomed to wash their linen at home. A feeling of independence keeps them away from all such resources. What would their neighbours say on seeing them go into such places, maintained for the most part by public charity? There is no other reason why public baths should not increase in Liverpool. The general opinion on the subject seems to be that every house, even those of the most humble artisan, should be provided with its own washhouse. It is in fact a provision which should be made by the proprietor and not by the town.

One may apply to large cities what Horace says of languages, "they change," indeed change is but a condition of their existence. The same of forests: they renew their foliage like the others, renewing their outshoots. The old houses tumble down and are replaced by others; the tide of buildings spreads over the plain, what was yesterday a morass is now covered with elegant houses. In fact they spring up in the midst of ruins, and population on its part soon fills up these new proofs of public progress. It was for the purpose of guiding this same progress that the improvement committee was established with the special object of embellishing the town. At the present time some spare ground in Sefton Park is being converted into a public promenade. When I visited the works the trees were not planted, but the stone basins were formed and the rocks were ready for the waterfall. The Borough is an authority which it is necessary to apply to whenever a change in the law is contemplated. Then under the title of a general and parliamentary committee, some aldermen and a council undertake to communicate with parliament, and comply with

all the required formalities of the house. The town council exercises a very extensive authority.

Marseilles is the Liverpool of the Mediterranean, and has those beautiful skies as its rival of the north so much wants, as well as that cerulean sea which defends its shores with its white borders, for nature has done everything for this city with its active population, ranging its spacious streets and its magnificent quays. Here twenty years have been to work on an extensive scale for the benefit of navigation and commerce. Without closing the old port, which can afford ample protection for ships against the winter gales, several splendid floating docks have been completed and opened. But it is the general observation that they have unfortunately not been constructed where they were wanted by the population, and it will be found hereafter that these docks do not correspond to the wants of the commerce of the place or can equal those of Liverpool.

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## The Parable of the Rich Man and Lazarus.

*A tribute to the memory of Charles Dickens.*

Will the readers of the *Nautical* smile at this title? We are not given to lecturing them, that they well know. But they also know that He who dealt in parables—synonyms may we call them—those fictitious assumptions, made them the means of imparting wholesome lessons to our fellow mortals. And they were largely employed by one who was the first writer of the day. He who has been lately snatched from us by the hand of death. The world-wide renowned Charles Dickens. The *Nautical Magazine* must not be backward in doing its duty to departed worth, and would avail itself of an extract from that beautiful discourse delivered over his grave (it might almost be said) by the Dean of Westminster, in which abbey the remains of our great novelist were recently deposited. Dean Stanley chose for his subject the parable of the rich man and Lazarus, and how well he turned it to account our readers will see. Towards the conclusion of that discourse he continued as follows:—

"It is said to have been the distinguishing glory of a famous Spanish saint that she was the advocate of the *absent*. That is precisely the advocacy of this Divine parable, of the Gospels, and the advocacy of these modern human parables. The advocacy of the neglected and weaker side of life, which, not seeing we are likely to forget.

"It is because this susceptibility to things *absent* is so rare and so difficult to attain, that we ought doubly to value those who have the eyes to see, and the ears to hear, and the tongue to speak, and the pen to describe those who are not at hand to demand their own rights, to set forth their own wrongs, and pourtray their own sufferings. Such

was he who lies yonder; by him that veil was rent asunder which parts the various classes of society. Through his genius the rich man, faring sumptuously every day, was made to see, and to feel the presence of the Lazarus at his gate. The suffering inmates of the workhouse, the neglected children in the dens and caves of our great cities, the starved and ill-used boys in remote schools, far from the observation of man, felt that a new era of sunshine was pouring in on their dark systems, a new interest awakened in their forlorn and desolate state. And this was because an unknown friend had pleaded their cause with a voice which ran through the palaces of the great as well as through the cottages of the poor—it was because, as by a magician's wand, those gaunt figures were made to speak for themselves to those who hardly before dreamt of their existence. Nor was it mere compassion which was thus evoked. As the same parable which delineates the miseries of the outcast Lazarus tells us how, underneath that degradation, was nursed a spirit fit for converse with the noble-minded and gentle-hearted in the bosom of the Father of the Faithful; so the same master hand which drew the sorrows of the English poor drew also the picture of the unselfish kindness, courageous patience, and tender thoughtfulness, that lie concealed behind many a coarse exterior, in many a rough heart, and in many a degraded home.

"When the little workhouse boy wins his way clear and undefiled through the wickedness around him, when the little orphan girl brings thoughts of heaven into the hearts of all around her, and is as a very gift of God to the old man whose desolate life she cheers, there is a lesson taught which touches every heart, and which no human being can feel without being made the better for it. It makes that grave seem to those who crowd around it as though it were the very grave of those little innocents whom he created for our companionship, instruction, delight, and solace. He laboured to tell us all in new, very new words, the old, old story that there is even in the humblest and worst of mankind, a soul of goodness and nobleness, a soul worth redeeming, worth reclaiming, worth regenerating; he laboured to tell the rich and the educated how this better state was to be found and respected even in the most neglected Lazarus; he laboured to tell the poor no less to respect those better placed than themselves. And if by any such means he who is gone has brought rich and poor together, and has made Englishmen feel more as one family, he assuredly will not have lived in vain, nor will his bones have been laid without cause in this resting place of the great ones of the English nation.

"There is one more thought which this occasion suggests in the parable of the rich man and Lazarus, besides the pungent and pithy lessons of social life which it impresses upon us. It refers to the awful solemnity of the other world. 'If they hear not Moses and the Prophets, neither will they be persuaded though one rose from the dead.' So also on Tuesday there was impressed upon us the solemnity, before which the most lively sallies of wit and the most brilliant splendour of genius went faint and pale—the solemnity of each man's individual responsibility in each man's life and death. When on

Tuesday last we stood beside that open grave, in the still deep silence of the summer morning, in the midst of the vast and solitary space, broken only by that small band of fourteen mourners, it was impossible not to feel there was something more sacred, more lofty, than any earthly glory, however bright, or than any historic mausoleum, however august, and that was the return of the individual human soul into the hands of its Maker. Many, many are the feet which have trodden and will tread the consecrated ground around that grave; many, many are the hearts that both in the old and in the new world are drawn towards it, as towards the resting place of a dear personal friend; many are the flowers that have been strewn, and many the tears shed by the grateful affection of the poor and those that have none to help them. May I speak with these many a few sacred words which may come with a new and deeper meaning, because they come from the lips of our friend—because they are the most solemn utterances of lips now for ever closed in the grave. They are extracted from the will of Charles Dickens, dated May 12th, 1869, and they will be heard by many here for the first time. After the most emphatic injunctions respecting the inexpensive, unostentatious, and strictly private manner of his funeral—injunctions which were carried out to the very letter—he thus continues:

"'I direct that my name be inscribed in plain English letters on my tomb. I conjure my friends on no account to make me the subject of any monument, memorial, or testimonial whatever. I rest my claims to the remembrance of my country upon my published works, and to the remembrance of my friends upon their experience of me in addition thereto. I commit my soul to the mercy of God through our Lord and Saviour Jesus Christ, and I exhort my dear children humbly to try and guide themselves by the teaching of the New Testament, in its broad spirit, and to put no faith in any man's narrow construction here or there.'

"In that simple and sufficient faith he lived and died; in that simple and sufficient faith he bids you live and die. If any of you have learnt from his works to feel the strong value of generosity, purity, kindness, and usefulness, and have learnt to show them in your hearts and lives, then remember these are the best monuments, memorials, or testimonials to the friend whom you have loved, and who loved with a rare and unselfish love his friends, his country, and his fellow-man. These are monuments which he would not refuse, and which the humblest and poorest and youngest here have in their power to raise to his memory."

The 'Dead March' in *Saul* was played at the close of the service.

We would add nothing to the above further than our regret that we could not report the whole of that impressive discourse pronounced by the Dean to a large crowd of hearers, whose sympathy was evident by a breathless attention, and among whom it is said many a cheek was moist with tears during its progress. Charles Dickens was born at Gosport, February 7th, 1812, and died June 9th, 1870.

## Collisions.

Now that the Mercantile Navies of all Nations are increasing so rapidly, perhaps a few words on collisions and how to *reduce* them, may find a place in a corner of the *Nautical*.

A correspondent from Sunderland, in the *Shipping and Mercantile Gazette*, speaks of a steam-boat sailor who wanted the vessel to be detained in harbour that he might have a night's rest on shore. Long voyage sailors are at watch and watch for months at a time, and steam-boat sailors are most exacting about their watch below, and there is no want of sleep, or time for sleep, if a man has the nerve to turn in at night, as almost all sailors, mates, and some masters do.

It would be very desirable to see the six hours' standing watches adopted like the plan of the engineers, when there are but two on board. Thus, a mate or seaman who is off duty from noon-tide to six p.m., will find no difficulty in keeping awake until midnight, when he will get six hours' rest, instead of the three and three quarter hours at most, as at present under the old system, when he will be too overpowered by want of sleep to have his wits about him to meet a sudden emergency. I have frequently tried to adopt this; but sailors' prejudice has prevented me. Doubtless, habit is second nature, and having to keep awake one night during the same hours one has slept in the previous night is very difficult.

It should be insisted that all steamers in channel should *steer on the bridge*. This plan I am firmly of opinion would undoubtedly have saved the *Earl of Elgin*. The man at the wheel, instead of stripping for a swim would have protested against the dangerous order, and a suggestion from a sailor, if properly given, is mostly attended to. Two heads are better than one, is a good old adage, and when the officer of the watch, the look-out man in clear weather, and the helmsman, are all together, they can hold a short consultation as to any stranger's movements. Whereas, at present, when the forecastle look-out reports to the officer, he sings out to the telegraph man (as he is often called) stationed about midway between the bridge and the helm. Should any alteration be suddenly required there is really not time to change the order, for sound itself takes some time to travel. Is the rate that sound travels exactly four seconds to a mile of longitude in time, or is it affected by the wind?*

Steamers are accused of keeping a bad look-out, and there are times when it is difficult to keep men awake, particularly after a crew has been hanging about a shipping office and its surroundings on the eve of sailing. For though men are in continuous service, they must go to the shipping office (however far off) to go through the hocus pocus of

*[No doubt the velocity at which sound will travel is affected by the force and direction of the wind, with reference to position of departure and arrival. In the late collision off Japan, the guns of the American ship *Oneida* were not even heard by the *Bombay*.—Ed.]

discharge and reshipment at least four times a year, I fancy by the date, that the *St. Rede* was just out of that ordeal when she was sunk, it was said, by putting her helm the wrong way.

In the early part of this year a steamer was for two days left unprotected by her crew, though they were men all on pay at the time. The first day they had not given twenty-four hours' notice. Thus, were two days lost through this piece of legal humbug. The steamer was bound to a Bar Harbour on the Continent, where she got beneaped and lay thirteen days waiting for water—Total fifteen days lost for being English.

I am sure the Board of Trade cannot know the mischief they do us by this unmeaning nonsense. The men are paid weekly so no money passes. I will give an instance told me by an officer on whose truthfulness I can rely. The steamer he had left had a collision, no wonder said he, as on leaving harbour, the captain was *lying down*, my chief engineer *non-compos*, stokers *following suit*. I had just one sober enough with myself to keep the fires going. I thought all seemed to be too quiet on deck, so went up; found no look-out, second mate lying on the bridge *fast asleep*, and the man at the wheel *leaning over it;* roused him, and threw a bucket of water over the mate of the deck, bolted below to the engineer and made my mind up to leave this craft on the first opportunity.

Many collisions occur through the mates when in charge *not liking* to give orders to the engineer. For instance, say the second mate is in charge and he finds it necessary to reverse the engines to save a vessel. Up comes the chief engineer, and asks him what the *somewhere* he means by *that*, and perhaps abuses him, and all this because some east coast magistrate told the world that there were two captains in a steamer, the captain of engines and the other of the ship, and the records of engine rooms say the captain got the sack for trying the case. I veto in a late accident neither of the mates in charge had even eased the steam. The helmsman often asserts that the helm is hard over, when it is not. This is because he cannot get it hard over unless the engines are eased in vessels of any size.

My Lords in their debate on the 13th instant, seemed to have a curious notion as to what the interference is between men and their employers, and I wonder that any shipmaster is stupid enough to take a wages case into court. The judgment for the sailor is stereotyped, also the one guinea costs. But our Thames police magistrate shews his verdure in asking the captain, Why *he* did *not* discharge a man before sailing? Why indeed! They only join at the last moment; and then too drunk to shew competence or the reverse! If you turn them on shore and fill their places with sober men, it is a misdemeanour punishable by imprisonment of the captain so offending!

The shipping offices now for the last twenty years have earned the unenviable reputation of sending crews on board in a more drunken and inefficient state than was the case thirty years ago; when one could really part with a man if he were not likely to suit and *too* drunk or insolent. But all ports have not convenient roadsteads in

which a vessel may anchor for a time to sober her crew without endangering her loss.

I consider a real crew of flesh and blood which we *used* to have when we cleared the customs formerly, better than the A A certificate, which is really only a crew on paper, and I am old fashioned enough to think that over legislation has not improved the safety or comfort of anyone at sea. Your obedient Servant,

A SUBSCRIBER.

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## TORPEDO OPERATIONS AT CARDIFF.

THE loss of the *Golden Fleece*, which was sunk in the fairway of the shipping to the port of Cardiff some considerable time since, will doubtless be remembered by most of our readers as a "wreck ashore." The vessel was an iron screw steamer belonging to the East India and London Shipping Company, and measuring 285ft. long, with 48ft. beam; she was of 2,768 tons burthen, and her engines were 300-horse power nominal. This wreck formed a dangerous obstruction to the navigation of the Severn Sea, and it was at last determined to remove it altogether. Independently of the element of danger, there was that of expense to be considered, inasmuch as a Trinity House light-ship was stationed on the spot at a cost of £700 per annum, the wreck being also marked by a proper buoyage. The Trinity Board, therefore, obtained the sanction of the Board of Trade and the War Office for the Royal Engineers to undertake the duty of removing the wreck, andthe first blast was made on Tuesday, June 14th. On soundings being taken previously to the operation of laying the torpedoes it was found that there were successively from the bows 18ft., 12ft., 18ft., and 6ft. of water up to the engines, which at low water were only covered by 18in. of water. Abaft the engines, the soundings were 6ft., 6ft., 12ft., 12ft., up to the stern. The destruction of iron ships when wrecked is a very difficult matter from that of wooden vessels. In the latter case the timbers are readily disjointed, and being brought to surface are easily removed. Iron plates and beams, on the other hand, hold strongly together, and require consecutive gaps to be cut across and beneath the hull in order to detach them bodily.

Our experience, too, in this class of work is not very extensive; the only cases we can cite where operations of this nature have been carried out are those of the *Foyle*, at Barking, the *Irides* and the *Leichardt*, at the Nore. In the present instance, torpedoes were used which were laid in position on the wreck, from a steam launch. Three torpedoes were used, each consisting of a boiler plate cylinder 4ft. long by 2ft. 6in. in diameter, having an opening 4in. in diameter at one end. Through this opening an India rubber bag was passed, which was filled with 500 lbs. of gunpowder. The mouth of the bag was

turned over the hole in the torpedo, and thus formed a washer for a boxwood coned plug which was next inserted. The plug was bored with two holes for the passage of the electric wires, the ends of each hole being fitted with a piece of India rubber tubing and a small steel cylinder. The mouth of the torpedo was closed by an iron cover piece which was screwed down, everything being made watertight. In order to ensure the explosion of the charges, the wires of each torpedo were connected with three Abel fuses. The torpedoes were lowered from the steam launch at low water, upon that portion of the wreck directly in front of the engines, two on one side and one on the other. The launch then made for her station about 600 yards from the wreck, reeling out the firing wires as she advanced towards the shore. When the tide had risen sufficiently to give 30ft. of tamping to the charges, they were fired, the effects being felt on board the "Trinity Lighter," off which the launch was moored. A dome of water some 30ft. high and 100ft. in diameter rose over the wreck, and from the centre a column of water shot up about 150ft. into the air. After this mass of water had subsided, the seething sea was mingled for some minutes with timbers and pieces of wreck. The soundings which have been made since the explosion of the torpedoes have proved that a great mass of the wreck 120ft. long and 12ft. deep has been cleared off, so that the explosion has done its work well.

The wreck will be again attacked in a similar manner with another charge of 1,500lb. placed immediately abaft the engines, so as to detach the centre elevated mass from the remainder of the hull. The operations were carried out by Lieutenant Moore, R.E., with very rough-and-ready means to hand, and their success so far, together with the necessity which exists for similar operations upon many dangerous sunken rocks around our coasts, points strongly to the organization of a special staff with proper craft for torpedo service.—*Mechanics' Magazine.*

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## Pollution of the River Thames.

When the Board of Works were authorized to collect the refuse and offensive offal of London, and by their conduits to cast it into the River Thames, an injury was meditated that has since been carried out, and the Houses of Parliament were invited on the opening of the works to witness that operation, and to admire the efficacy with which the works of the Board of Works had effected their purpose. But among them were others who saw the folly and self-destruction that this measure was sure to bring about, and laughed at the Board as they proceeded, heedless of the consequences which would result. And we received some lines suggestive of the evil effects of those consequences that may be here reproduced, which lines ran thus and were entitled *The Lament* of Father Thames on the main drainage scheme.

Since then I'm doomed by cruel man's foul art,
For London's town to do the nightman's part!
Yes, doomed alas to take as bosom friends
The filthy things that London daily sends;—
To bear them seaward, and deposit there
The stuff which fertilizes fields elsewhere!
Revenge I'll have! 'Tis said revenge is sweet,
Myself I'll purify by man's conceit!

Ungrateful town,—your father thus to treat,
Who watched your progress, daily washed your feet;
Who brought you up, cherished you, and made,
Aye, placed you on the pinnacle of trade!

See your wide docks with ample stores of wealth
From friendly ocean brought you by myself,
See your tall ships, a forest grown of masts,
Riding securely from destructive blasts!
Your noble mansions! while your flag unfurled
Waves o'er the largest city of the world!
What without me would you e'er have been,
Without my once bright, pure, meand'ring stream?

Commercial race, yet purblind not to see
Your profit lies in taking care of me!
Where are those quays, those jetties for my banks
I once was promised? but have nasty tanks
Instead! My shores that should be beautified
Are rendered noxious by the passing tide!
This the return for my parental pride!

The die is cast; my future state is sealed:
Let the result hereafter be revealed!
If noisome pestilence my bosom bear,
Let London ne'er forget who brought it there!

Come on, ye bright and sultry summer days,
Warm up my stream and sickly vapours raise;
Enfold those ships within your dire embrace,
With odours fill them as they run their race.
The *Cloaca Maxima* I'm become
For London sewage, and the very scum
Of every drain which filthy ordure brings
In summer's heat to tides of Neaps or Springs.

Now, mighty Sun, pour down thy scorching rays,
Among those ships my foul effluvia raise;
Nor fail not well t'administer it strong;
Their fevered crews will not endure it long!
Nor cease by night my poisons to exhale,
'Midst ships at anchor and those under sail;
And perfumes which the ebbing tides retain,
Let flowing tides renewed pour forth again;
Spread o'er my breast a pestilential air,
Producing cholera in spite of care,
As my return for London's nauseous ware!

Departed Bards! who oft in walking dream,
Extolled the beauties of my wandering stream;
Well are ye spared the picture I present,
As scavenger of London's excrement!

* * * * *

The foregoing "Lament," which was said to have been read at a London club, first occcasioned much amusement to the club, but this seemed to fade away,

"When calm reflection held her quiet sway:"

and gave place to serious looks and bodings deep for British seamen exposed hereafter to the resentment of Father Thames, which they so unmistakeably expressed.

"Is nothing to be done," said a voice. "Nothing, the Board is absolute," was replied, * * on which the club separated.

These have appeared somewhere among our volumes, but be the author of them who he may the prophecy has in great part been verified. We all remember the outcry which commenced at Barking, and although Barking itself was by no means a clean place, the London sewage brought there by the Thames tended in no way to purify it. Perhaps it made bad worse. However the truth has been unfolded, we have lived to see the error of our ways, the absurd, the annihilating legislation on which the Board of Works had been authorized to proceed, and all that, has been remedied by another piece of legislation, which makes it illegal to cast into any of our rivers (the Thames itself included) any such offal as was the special care of the Board of Works to dispose of. For it is with no small satisfaction (and we congratulate our Thames navigators on the fact) that we find the Board of Works have to remove those precious banks of filth which their works have produced.

A wise legislation has determined on preventing the outrages that have so long been inflicted on our streams, and would restore them to their original purity! Why not? Their living occupants enjoyed them—if they did give sport to the lovers of the rod and net, and why should they not do so, as in days when that condition as it assuredly will be, shall be restored, and our streams shall again have become as healthy as they were in days of yore! realizing the concluding sentiments of the Lament of Father Thames.

"Evils, 'tis said, must always be endured,
'Till at the worst they're certain to be cured.
Time tarries not. Some years have passed away
Since Father Thames once sang his plaintive lay:
Those ships returned that once forsook his port;
For why? impurity's banished from his court!
That stream is sweet, for sewage never meant.
Invaded once by Act of Parliament."

Any one must have foreseen the folly of the measure. But what cared the Board of Works for that as long as they might remove the nuisance from the noses of one set of people by whom it was originated to those of another. So, the Chinese have given us a useful lesson, and well might they look on us as the outside barbarians. But here is what the *Mechanics' Magazine* tells on the subject.

"'Who's to decide when doctors disagree.' In other words, the old saw tells us plainly enough that very frequently the office of umpire is by no means a comfortable position. So long as human

nature remains as it is, it is quite impossible that any decision can ever please both parties. Those to whom it is adverse, however readily they may acquiesce in the justice of it, can hardly be expected to welcome it. For some time past the Metropolitan Board of Works and the Board of Conservancy of the Thames have been at loggerheads, and they still maintain that unenviable position. It is difficult to see how they could be otherwise relatively situated. The Board of Conservancy are charged with the duty, as the name implies, of conserving, that is, of taking care of the river. It is their express office to prevent the fouling of the stream by any means whatever, and as, in spite of all their efforts, the stream does become fouled in a variety of ways, they are obliged to dredge it and remove the shoals and deposits as they accumulate. On the other hand, the Metropolitan Board of Works are endowed with the privilege of fouling the river, to an extent that could have never previously been imagined. It is, in fact, at present their duty, by virtue of the powers they have acquired, to discharge into the river all the sewage, filth, road detritus, and general refuse of a city numbering nearly three millions of inhabitants. Get rid of this incubus they must at any price, and the most ready means of effecting that riddance lies in discharging it into the Thames. In days gone by, when sanitary measures were unknown and equally uncared for, and when the population of what are now our great cities was scarce and scattered, there was some excuse admissable for converting the nearest watercourse into a common sewer. But this excuse is now no longer available. It is true that it may be difficult in many cases to find a remedy, but still the remedy can be found. It does exist, and will most assuredly be discovered, as it always is when pressure is brought to bear upon those whose duty it is to search for it. This duty manifestly belongs not to those who suffer from the injury but to those who commit it. The former have a right to compel the latter to amend their ways, but they are not bound to show them how to do it.

"Looking at the Metropolitan Board of Works in the light of the aggressors and the Conservancy Board in that of the aggressed, it is amusing to consider the *ruse* contemplated by the former authority. They proposed, in order to ensure "joint action" and that beautiful harmony and freedom of action that should always characterise our local boards, but which unfortunately never does, that three of their members should also sit *jure suo* upon the Conservancy Board. This the latter authority does not "quite see." Without conniving at the violation of their own duties, it is difficult to imagine how they could see it. The ostensible reason for this proposed semi-amalgamation is that the "disposal of the sewage" may be arranged for satisfactorily to both parties. The absurdity of this argument lies in the fact that there is not the slightest necessity for any such joint action. All the Conservancy Board have to say on the matter is "keep it out of the river." Surely the other authority can do this without the help of the Conservancy Board. But so long as they wish to discharge it into the river, which they will do for some time yet, they are naturally anxious

to secure the co-operation of the authority whose duty it is to take care that it is not discharged into the river. The whole of this dispute has been raked up and embodied before the select committee of the House of Commons on the Thames Navigation Bill. Hitherto the result has been that the Metropolitan Board of Works are willing to comply with their own suggestion, but the Conservancy Board are not. We will examine a little into the evidence adduced last week *pro* and *con* the pollution of the river.

"It must be borne in mind that if the pollution of the river by the sewage of London be established, the Conservancy Board make out their case, and their rivals must cry "peccavimus." The reason why the Metropolitan Board are perfectly willing to accede to the proposal is that it is all in their favour. They are the offending party, and are consequently glad of any chance that may enable them either to sin with impunity or which may lead to a mitigation of their responsibility. In fact, the time is gone by for raising any questions of this sort. Besides, it is an evidence of self-stultification on the part of the Government to forbid such and such a river to be polluted by the discharge of sewage into it, and to permit the offence to be committed in the most flagrant manner, and in a gigantic scale with respect to others. These cases, which are fruitful sources of ligitation, squabbling, and great unnecessary expense, will never be put a stop to until there is one general Act passed forbidding in the most peremptory and unmistakeable terms, the discharge of any sewage or other refuse matter of any kind whatever into any natural watercourse in the United Kingdom. This is the only measure that will produce the proper effect, and will convince the public that the Government is in earnest with respect to this gross violation of all regard to the health and welfare of the community at large.

"A good deal of the evidence brought before the committee was in the main a recapitulation of what was some time ago adduced by the inhabitants of Barking, in their petition against the pollution of the river and their little creek. Our readers will probably recollect that an inquiry was appointed to be held by the Local Act Government Office into the Barking matter, under the presidency of Mr. Rawlinson, C.B., and that the result was that the Barkingites failed to make out their case, although they demonstrated clearly enough that they had just cause of complaint against the defendants. That deposits and shoals have accumulated since the London sewage was discharged into the river, there cannot be a shadow of doubt in the mind of any disinterested person who carefully peruses the statements of the several witnesses examined. The fact was proved that vessels grounded now at certain parts of the river where some years ago they would not only have had several feet of water under their keels, but could have lain a hundred yards nearer in shore. Having satisfactorily established the fact that shoals have been recently created in the bed of the Thames, the next step is obviously to trace them to their source, and prove that they are caused by the sewage. The mere circumstance that an evil did not exist until a certain cause or event came into

operation, although it may be *prima facie* very suspicious looking, is yet not enough to establish that event as the actual source of the nuisance complained of. The several links in the chain of conviction must be completed, and the clear and indisputable connection between cause and effect must be fully made out. This line of argument was adroitly availed of by the Metropolitan Board of Works, who alleged that the Thames Embankment, the cylindrical piers of the Chartered Gas Company at Beckton, and "geological mud" might have given rise to the shoals that now seriously interfere with the navigation of the river. As examples of special pleading the first two allegations may be allowed to pass, but they are worthless professionally speaking. The "geological mud" was disposed of by Dr. Letheby, who made careful analyses of the water and the deposits, and gave it as his opinion that the mud was not geological but sewage mud. Probably, the most convincing fact, if we omit consideration of the chemical analysis, is that there is no decided large bank of mud anywhere else in the river except where the outfall of sewage takes place. The evidence was strong with respect to the shoaling of the Halfway Reach. In 1864 there was from 16ft. to 18ft. water at low water there. In 1867, Her Majesty's yacht, which draws 13ft. 10in., having the Prince and Princess on board, took the ground three times within half a mile.

"While, unquestionably, the actual sewage itself of London contributes largely to the formation of the deposits and shoals, yet at the same time the mischief is augmented by the road detritus and other foreign substances, which find their way into the sewers and thence into the river. But if the former be kept out so will the latter, as our Metropolitan plan of drainage is not based upon the separate system. Even if it were, and the sewage kept out while the detritus was allowed to flow into the river, the evil would only be partially remedied, as the mud from the streets with all the other various abominations that get into the sewers and drains, are only one remove less offensive than the sewage itself. This is one of the errors that the advocates of the separate system fall into. They appear to imagine that if the sewage matter only be kept out of the drains, their contents may be allowed to flow into the river without fear of pollution occurring. This is a gross mistake, and we trust that it may be discovered and acknowledged before parties commit themselves to that principle of drainage. If otherwise, the infallible result will be that a large amount of money will have been wasted, as all the work will have to be done over again. We fully agree with Mr. Rawlinson that no solid matter of any kind should be allowed to be discharged into our rivers. Ultimately there is little doubt but this will pass into law, and what then becomes of the separate system of drainage and the discharge into the streams and watercourses? We have alluded to the importance of the sanitary measures connected with this subject of the pollution of rivers, but in the present instance that point is not touched upon. The Thames Navigation Bill deals only with the results of the Metropolitan drainage upon the navigation of the river,

the object of the promoters being to establish their allegations against the Board of Works and compel them to remedy the evil. It is plain that some time must elapse before this remedy could be in full operation. It is no easy task to deal with the sewage of a city like London, and some temporary expedients must be resorted to, before the difficulty can be grasped comprehensively, and a permanent course of action decided upon. Under these circumstances, the committee have concluded very judiciously and wisely that the Metropolitan Board of Works should keep the Thames free from banks or obstructions which have arisen or may arise from the flow of sewage into the river at the outfall. For this purpose they are at liberty to dredge the river with the consent and under the superintendence of the Board of Conservancy. In case of dispute, referees are to be appointed, and if they consider any particular part of the river requires dredging, the Metropolitan Board of Works are to do it. If they refuse, the Conservancy Board may do it and charge the cost to the other board. This resolution is just and equitable, but is only a palliation, not a removal of the evil."

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THE MERCURIUS—*noted in page* 387.

We find the following interesting narrative in the *Daily News*, of June 28th, and being thoroughly nautical preserve it for further reference. We hope some friendly hand will form a little volume of its history for the benefit of these poor fellows so happily snatched from death.

A remarkable story reaches us from Liverpool. Six sailors, bearing the names respectively of John Coleman, D. M'Call, Middy Baptiste, Joachim King Dilombo, Charles Lance, and Edward Gray, have just passed through a succession of adventures on a desert island, which more than realises the most thrilling of the many romantic stories of shipwreck written for our youth. The fine new iron clipper ship *Mercurius* left San Francisco early in January last on her return to England, having previously made her first voyage from the Clyde to Sydney. She was commanded by Captain Cuthbertson, an experienced navigator, and all went well with her until the 25th of March. In the early morning of that day, it being then dark and raining heavily, the good ship struck on a dangerous coral island, known as the Rocas Reef, in latitude 3·52 S., longitude 33·20 W. No one on board had thought of danger until five minutes before the *Mercurius* struck. The look-out man then gave the alarm, "Breakers ahead!" the Captain was called, the course of the ship was altered, and her helm was put "hard over." But it was too late. A few seconds of that intense anxiety in the endurance of which men seem to live years, and then all doubts were solved by the *Mercurius* first grazing her side below the water against the sharp edges of the coral, and then striking violently on it twice. She began to fill instantly, and as she was hanging as it were over the ledge of the rock the word was passed to

man the long-boat, in the hope of saving all hands. But while this was being done the ship lurched suddenly outwards and went down like a stone, in eight fathoms water. It may be remarked that one of the characteristics of coral reefs is that they have frequently deep water right up to them; and the rocky islands in the Red Sea, the position of which is wrongly given on the charts, are especially dangerous from this fact, and because, like the Rocas Reef, they lie low, and at night, or in thick weather, elude observation thoroughly. If the fate of the *Mercurius* reminds the House of Commons of the dangers to which ships in the Red Sea are exposed, her loss will not have been in vain; and as the useful question put by Mr. Gourley some time back has neither been repeated nor borne fruit, it may be that some other independent member will take the matter up, and prevail upon the authorities to have the Red Sea re-surveyed. For out of the twenty-two hands on board the *Mercurius* the morning found but six alive, and these, after swimming for two hours and until the tide fell, gained a footing on the ledge, and proceeded to explore it. Their story reminds one from this time of Philip Quarles and Robinson Crusoe, of Juan Fernandez, the Swiss Family Robinson, and the ingenious hero of Mr. Reade's and Mr. Boucicault's novel.

Looking to the sea, the tops of the fore and mainmast of the *Mercurius* were just visible out of the water; looking over the islands which were to be their home, some fifteen acres of barren rock, interspersed with patches of sand, and connected by a narrow isthmus with another rock equally barren, of the same size, met their gaze. One cocoa-nut tree formed the only sign of vegetation. It was the sole survivor of those which were planted there some years ago by order of her Majesty's Consul at Pernambuco, in order that the reef might be seen more easily by vessels on the Brazil or Cape Horn route, in the direct track of which it lies; but there had been wrecks here previously, and with the aid of articles left behind by the survivors, the shipwrecked men contrived to bend circumstances to their will. They found two iron tanks deposited in convenient positions and filled with water, as well as a considerable quantity of broken timber, out of which they built themselves a log hut. They found, too, that pearl of great price a broken knife, a hammer, a two ounce weight, and a large copper bolt, and with these clumsy tools they made two boats out of the planking strewed about the rocks, fastening them with nails which they extracted from the broken timber of other wrecks. It does not appear that the poor fellows had any thought of escaping in these boats; but they were enabled to make fishing excursions and to sail with signals flying in search of ships in the early morning and in evening, when the sun's fierceness was subdued.

They had no clothes, and except in their hut no shade, and the tropical heat was terrible. The majority of the men saved were in their berths when the *Mercurius* struck, and swam to the rock in their shirts; and it was not until one of their number made a hat out of the fibre of the solitary cocoa-tree, sewing it together with a needle made out of a piece of brass found on the island, that any protection for the head was to be seen among them.

To add to their misery, the reef swarmed with venomous ants, which bit the strangers unmercifully, and with an effect which can be only realised by those who have suffered from the insect-life of tropical climes. Let the traveller who has been accustomed to mosquito-curtains, to the powder which is guaranteed to stupify the enemy, to the ingenious form of night clothing which provides a net helmet for the head, to sleeping drawers and jacket which are hermetically closed at wrist and foot, and who has, in spite of every precaution, found himself bitten through the live-long night—let such a traveller fancy the condition of men without clothes, over and upon whom ants swarmed with forty mosquito power. But they became indurated in time. Their flesh grew less tempting by reason of exposure, or they were hardened to the bites, and their pain was less. The Commissariat question was settled in a way which will make every school boy's mouth water who reads of it. They went out in their boat and caught fish and turtle, and they had an abundance of bird's eggs and shell-fish. They manufactured bird traps and caught young birds, cooking them by a fire which was never suffered to go out by night or day. They had, of course, no matches, and no means of procuring a light other than the time-honoured one we have all read of in Cooper's novels—that of rubbing two bits of wood together till they ignite.

There was no fuel belonging to the island, and the broken *débris* of former wrecks supplied the only material for the all-important fire. Three times during their sojourn on the rock was this fire suffered by some accident to go out; and three times was the experiment in friction anxiously and successfully tried. So the time wore on until fifty-one weary days had been spent on the reef, days in which every man scanned the horizon, and in which the strong cheered the faint-hearted, and all spoke hope in turn. It is easy to picture the existence these men led. The first gratitude of escape; the anxious search for fellow-survivors; the mournful conclusion that the rest of their shipmates were no more; the stern necessity which bade them work, invent, contrive; the development day by day of some fresh ingenuity, some little suspected quality in each, and the gradual accumulation of reliefs, and even comforts—can all be traced. They were prudent men—men taught by calamity to prepare for a rainy day; for, when rescued, they had two hundred eggs in store, and are described as being in good condition.

Their rescue was not effected until the 15th of May, when the commander of the iron clipper barque *Silver Craig*, Captain Cohn, was approaching Pernambuco, and discerned a lump on the well-known Rocas Reef, which he made out to be a hut. Drawing nearer he discerned a signal of distress, composed of a seaman's striped shirt, fluttering half-mast high, and he then hove-to within two miles from the island; and waited until six nearly naked men put off in their rude boats and came on board. They were kindly and hospitably received, and had a passage given them to Liverpool; where they are now telling their strange story, and exhibiting to their friends the

cocoa-nut fibre hats, which were until recently their only articles of attire, and which they now keep as mementoes of the perils they have escaped. In simple force, in romance, in strangeness, in fertility of resource, and in adventure, the real experience of these six sailors on a desolate island is worthy of Defoe, and makes most fictitious histories of shipwreck seem tame and feeble by comparison.

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## LITERATURE AND THE FINE ARTS.

BENEVOLENCE is in this age an elegant as well as most praiseworthy Christian virtue. Its inventions are worthy of its noble name. It combines with much thought and industry, high purposes with beautiful productions. Much-abused bazaars exhibit such associations. Variety, no doubt, finds its way into such exhibitions, but into what gathering of defective humanity does not this questionable influence find its way? The love of distinction is in every age a nearly universal passion; as we cannot extinguish it, our object must and *should* be to render it useful to society. We are led to make these remarks, sufficiently obvious perhaps, by the inspection of a beautiful volume which has recently appeared entitled, ALEXANDRA.

It has originated in the earnest desire of a few writers and artists, the majority of which have already attained a high standing in Literature and Art, to advance the welfare of a most interesting Institution, the Alexandra Infant Orphan Asylum, in which parentless young children, those of the tenderest age, may be received, protected, cherished, and educated in the best manner, (*i.e.*) on the system of *Family* association.

The Asylum intended for the refuge of 400 children is divided into separate homes, to contain twenty-five little ones in each, quite a sufficient number to exercise the vigilance, affection, and care of any individual matron, yet not so numerous a charge, as that the individual child shall be lost in a crowd, to the injury of its future character, in the way of its mental and moral development.

The work that has been published in aid of the above described institution consists of many pieces, both in Prose and Poetry by well-known writers, the first short tale entitled, *The New Year's Gift*, is by Mrs. S. C. Hall, and is illustrated by Miss and C. J. Miles.

The *New Year's Gift* is a foundling infant girl, which deserted babe is discovered by a station-master on a cold drizzling morning (the 1st of January). Wrapt up in his coat with tender care and brought home to his already over child-laden wife. Other excellent compositions follow, especially one on the *Nurture of Young Children*. Mothers may study with great advantage its thoroughly sound advice. The Alexandra as a gift book is worthy of recommendation, a most pleasing and useful present, it certainly constitutes on the ground of its own merits, while its high and holy purpose should ensure for it an extensive sale. The Honorary Secretary of the Institution is *Mr. Joseph Soul*, 73, Cheapside.

# Nautical Notices.

## Particulars of Lights Recently Established.

(Continued from page 268.)

| Name. | Place. | Position. | F. or R. | Ht. in Ft. | Dist seen Mls | [Remarks, etc. Bearings Magnetic.] |
|---|---|---|---|---|---|---|
| 56.* Terraght Island | Ireland S.W. | 52° 4·5′ N. 10° 40′ W. | R. | 275 | 22 | Est. January, 1870. See Note. |
| 61. Santander | Point Puerto | West Entr. | F. | 79 | 4 | Est. 15th May, 1870. *Green.* |
| 62. Rocks off Ilha Grande | ... ... ... | ... ... ... | ... | ... | ... | See Notice No. 62. |
| Monte Video | Breakwater | End | ... | 16 | ... | Extending from Point S. Josa. |
| 63. Portsmouth Harbour | Buoy Black can | ... ... ... | ... | ... | ... | See Notice No. 63. |
| Thorn Knoll | Southpton. Water | Entrance | ... | ... | ... | See Notice No. 63*a*. |
| 64. East Iron bound Light | Nova Scotia | Matrone Bay | ... | ... | ... | Destroyed by fire. |
| Prospect Har. | U.S. Maine | East Entr. | R. | 40 | 11 | Est. 15th May, 1870. See No. 64. |
| Guadaloupe | Basse Terre | Changed | ... | ... | ... | to a *Red* light. |
| Lamentin Point | Port au Prince | ... ... ... | ... | ... | ... | Discontinued. |
| Samana Bay | Balandras & | Pascal Bay | ... | ... | ... | Discontinued. |
| Breakers reported by | H.M.D.S. *Ancona* in | 12° 55′ N. 66° 8′ W. | ... | ... | ... | |
| 65. Point Arena | California | 38° 57′ N. 123° 45′ W. | F. | 155 | 21 | Est. 1st May, 1870. Reported. |
| 66. Liverpool B. | Nova Scotia | ... ... ... | ... | ... | ... | Est. 15th July, 1870. See No. 66. |
| Cape Sable, to be changed | | ... ... ... | R. | ... | ... | Est. on 1st September, 1870. See No. 66*a*. |
| Baccaro Point changed from Re- | | volving to | F. | ... | 12 | *Red* on 1st September, 1870. |
| 67. Kiu Siu Island | Japan | South Point | F. | 290 | 18 | Est., not said: observed landward. |
| 68. Jouan Gulf: Ilette | France: Mediter. | 43° 32·6′ N. 7° 7·2′ E. | F. | 34 | 1½ | Est. 1st July, 1870. See No. 68. |
| Rosetta Light | Egypt | changed | R. | ... | ... | Est. 1st Sept., 1870. Reported to be |
| Danube River Beacon | St. George's Entrance | 44° 46′ N. 29° 8·7′ E. | ... | 50 | ... | See also 68*a*. |

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

* Revolves in 90 seconds. Not visible between bearings of N. ¼ W. and W.S.W. ¼ W. Upper Skelligs light discontinued. Loop Head Light Entrance of Shannon changed from Fixed to Intermittant: the light lasts 20 seconds, darkness 4 seconds.

No. 61.—Vessels from the westward should not sight the light on Point Puerto until it bears S. ½ W., to avoid the shoal water off Cabo Menor.

No. 62.—*Sunken Rocks near Ilha Grande.*—The French Government has given notice, that two sunken rocks have been recently discovered to the southward of Acaya point, west extreme of Ilha Grande, by Captain R. de Coligny, I.F.N. The first, with 3¾ fathoms on it, bears S. ¾ W. one mile from the extremity of Acaya point, and the other, with 4¾ fathoms

on it, S.S.W. one and a half miles from the same point. They have from 16 to 19 fathoms around them, and it is said there is a safe passage between them and Acaya point.

No. 63.—From this buoy Coast Guard flag-staff bears S.E. by E. Red Swash mark, E. by S. 1⅛ cables. Trident's monument, N.E. ⅛ E. 1¼ cables.

No. 63*a*.—This *red can* buoy is moored in 3½ fathoms at low water springs with the following marks and bearings, viz.:—West end of boat-house at Calshot Castle on East end of Netley Hospital, N. ⅛ W. Calshot light-vessel, N.E. by E. ⅛ E. one mile. Thorn Knoll buoy, W.S.W. half a mile.

No. 64.—The light shows alternately *red* and *white* flashes at intervals of *thirty seconds*.

No. 66.—The white light will be changed to a *fixed red* light, which in clear weather should be seen from a distance of 5 miles.

No. 66*a*.—*Alteration in Cape Sable Light.*—Also, that from the 1st day of September, 1870, the following alteration will be made in Cape Sable light, viz.—

The fixed red light will be changed to a *revolving white* light, showing *bright for fifteen seconds* and *eclipsed for twenty-five seconds*.

No. 68.—*Fixed Light on Ilette.*—The French Government has given Notice that, from the 1st day of July, 1870, a light will be exhibited on Ilette, Cape Antibes, or Garoupe, eastern extremity of Jouan gulf.

The light shows *white* from W. by N. ⅛ N. round by north, to E. ⅛ N., and *red* from the latter bearing to E. by S. ⅛ S., and in clear weather the white light should be seen from a distance of 9 miles and the red light, 6 miles.

*Note.*—Vessels approaching the reefs of Les Basses de la Fourmique will pass into the limits of the red light, the south limit of which is about a quarter of a mile to the southward of the shoal south of Fourmique.

No. 68*a*.—Also, to mark the St. George's shoal and Portici anchorage, eight buoys have been moored between St. George's lighthouse and the beacon, on the 5 fathoms line of soundings. The East buoy, *red*, lies S. ⅛ W. 2⅛ miles from St. George's lighthouse; the West buoy, *red*, lies S.E. by E. ⅛ E. 4⅛ miles from the beacon; the remaining six buoys, *black*, are moored at equal distances between the East and West buoys.

*(All Bearings are Magnetic. Variation, Gulf of San Jouan, 16 Westerly, Black Sea, 5½° Westerly in 1870.)*

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## ROYAL NATIONAL LIFE-BOAT INSTITUTION.

AT the meeting of the Council of this Institution on Thursday, the 2nd of June, held at its house, John Street, Adelphi; Mr. Thomas Chapman, F.R.S., V.P., in the chair. There were also present Sir Edward Perrott, Bart., Mr. W. H. Harton, Admiral Sir W. H.

Hall, K.C.B., Admiral Ryder, Sir William Clayton, Captain De St. Croix, Mr. John Griffith, Colonel Fitzroy Clayton, Admiral M'Hardy, Colonel Palmer, and Mr. Richard Lewis. The minutes of the previous meeting having been read, rewards were granted to the crews of different life-boats for services on the occasion of shipwrecks on our coasts. The *Willie* and *Arthur* tubular life-boat, at New Brighton, went off, in reply to signals of distress, during a strong gale from the south-west, on the 12th of May, to the barque *Ida Maria*, of Dantsic, bound from that port to Liverpool with a cargo of timber, which, in attempting to enter the Mersey, had gone on the Little Burbo Sand-bank while a very heavy sea was running thereon. The life-boat remained by the vessel for some time, and used every exertion to get her off, but without avail, and the crew of thirteen men and a pilot were then taken into the boat and brought safely ashore, the barque afterwards becoming a total wreck.

The Newbiggin life-boat *William Hopkinson*, of Brighouse, had also rendered important service on the 11th of May to six fishing cobles of that place, which had been caught in a storm, and were in imminent danger. With the life-boat's assistance the boats and their crews were all fortunately got home in safety. The *Christopher Ludlow* life-boat, at Dungarvan, Ireland, was the means of saving the crew of three men of the schooner *Bertholly*, which struck on Dungarvan Bar during a southerly gale and in a heavy sea on the 30th of May, and was in danger of breaking up. On the 17th of May the sloop *George* and *Margaret*, of Allonby, in attempting to enter Maryport too early on the tide, struck upon Skinburness Point during a very heavy gale and in a tremendous sea. In a very short time she capsized, filled with water, and the crew of two men were unhappily drowned before the Silloth life-boat, *Angela* and *Hannah*, which was most promptly launched, could possibly get to the scene of the wreck.

The silver medal of the Institution and a copy of the vote inscribed on vellum were granted to Mr. William Stuggins, the second coxswain of the Teignmouth life-boat, on the occasion of his retirement from that office, in acknowledgment of his long and valuable services in the life-boat during the past nineteen years in saving life from shipwreck. Various other rewards were likewise granted to the crews of different shore boats for saving life from wrecks on the coasts of the United Kingdom. Payments amounting to £1,600 stock of the funded capital of the Institution being ordered to be sold to meet in part the said payments. £50 had been handed to the society by Mr. William Chippendale, of Tunbridge Wells, at the request of his late son, Dr. Walter Chippendale.

The late Mr. John Abbott, of Halifax, had left the Institution a legacy of £2,000, part of which sum was to be applied towards placing another life-boat on the coast. The late Miss Sarah Dorset, of Reading, had likewise bequeathed £100 to the Society. A new life-boat had just been sent to the Isle of Arran, in Scotland, and the Glasgow and South Western Railway Company had readily granted the boat a free conveyance over their line. His Royal Highness the

Field-Marshal Commanding in Chief had informed the Institution that he had given orders for the Institution's revised instructions for the restoration of the apparently drowned to be circulated at all the stations of the British army at home and abroad. Reports were read from Captain J. R. Ward, R.N., the inspector, and Captain D. Robertson, R.N., the assistant-inspector of life-boats to the Society, on their recent visits to the coast, and the proceedings then terminated.

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## A Review of Nautical Topics.

We must place at the head of our usual notice of Nautical matters the following report of the loss of one of H.M. ships on that very dangerous reef the Paracels, in the China sea; an event to which we have no doubt that the extraordinary currents of that sea mainly contributed. As yet we know nothing further of it than the following record in which we are sorry to find that many lives have been lost. We understand that intelligence has been received at Bombay of the loss of H.M. gun-vessel *Slaney*, on the 16th of May, on the Paracels group, in a gale. Commander F. L. Elywn, Lieutenant Robert S. Evatt, Mr. W. F. Ryall, the surgeon, and forty-three men were drowned. H.M.S. *Adventure* and *Salamis* had, it is stated, gone to render assistance. The *Slaney* was recommissioned at Portsmouth on the 1st of July, 1868. She was a vessel of 301 tons, eighty horse-power, carried three guns, and was on the China station. Commander Elwyn was in his twenty-ninth year, and entered the service in 1856, passing in 1861. He was appointed to the *Slaney* in April, 1866. No additional particulars have come to hand. We shall look with some anxiety for further accounts.

Here is another account of a wreck belonging to a class of vessels to which those events are so common, that we have long ago left them in the hands of authorities which look into such matters. But we notice this specially in reference to the kind and very considerate natives of the Pellew Islands, whose character has been handed to us by history as a far more civilized class of people than is usual in their part of the world, We find in *Mitchell's Maritime Register* of the 11th of June, that the following has been received at the Board of Trade in reference to the rescue of the crew of the wrecked barque *Renown*, Pellew Islands:—

Extracts from a letter of proceedings of Commander Robinson, of H.M.S. *Rinaldo* (dated April 15);—I beg to report the return of the *Rinaldo* to Hong Kong with the master and crew of the late British barque *Renown*, who were taken off the Pellew Islands on the 2nd instant. Finding that the crew of the *Renown*, during the fifty-three days they had been on the island, had been treated with the greatest possible kindness and hospitality, I expressed to the King the satisfac-

tion with which H.M.'s government would receive the intelligence, and in return I made him a present of some articles of clothing, etc., on which the natives appear to set much value. The islanders were liberal in their presents to the ship's company of fish and other fresh provisions, and I could have obtained a larger supply had my stay been longer. At 10.30 a.m. on the 3rd of April, after having received the King of Corror and his chiefs on board, and having formally thanked them for their hospitality and delivered to them the present referred to, I proceeded to sea by the channel through the Western Reefs."

Another disastrous wreck on the Rocas Reef has taken place. The ship *Silver Craig* just arrived at Liverpool, had on board six of the crew of the iron ship *Mercurius*, Captain Cuthbertson, which was totally wrecked on the Rocas Reef, a dangerous reef in the South Atlantic, in lat. 3°52′ S., long. 33°20′ W., on the 25th of March last, and the captain, officers, and seamen to the number of sixteen, were drowned.

Possibly on the investigation of this, the compass will prove to have been the misleading cause, and we may perhaps learn why it was so.

We often hear of fires on board of our merchant shipping, and cotton ships in India are celebrated in the annals of such mishaps. No wonder, however, they are frequent when such ways as are here disclosed,

"Bombay, June 23rd.—Government have offered a reward of £500 for the discovery of the perpetrators of the fire which caused the destruction of the ship *Aurora*."

The foregoing is dated June 23rd, which seems to have produced the following, dated Bombay, June 24th—

"In consequence of the reward offered by Government, information has been laid which has resulted in the arrest of the captain of the ship *Aurora*, and of two English freight brokers, who are sworn to have planned a scheme of shipping bad cotton and wool, and afterwards destroying the ship with the view of obtaining the insurance on the goods. The total shipments by the *Aurora* were 575 bales of cotton, and 419 bales of wool."

We will merely add here the well known motto *verbum sat.* And turn to the subject we have recently alluded to, that invaluable boon to Merchant Shipping the Cape Town Docks.

On this subject our friend *Mitchell's Register* dilates thus:—

"The increase of shipping accommodation at Cape Town, by the opening of docks of sufficient extent to meet the present requirements of the trade at that place, will be interesting intelligence to a large number of readers. The 17th of the last month was fixed for the opening of these works. We learn that the depth of water in the inner basin is twenty-four feet at low tide over the entire area, except at the approach to the patent slip, where the water decreases gradually to sixteen feet alongside the quay at low water. The prevailing winds

blow across the dock entrance, thus enabling a ship to take up a good position for warping in. The depth of water at high tide at the entrance is said to be but twenty feet, but this depth is being gradually increased, though, inasmuch as the work is performed by blasting under water, it is of necessity a slow process. The tariff of rates has not as yet reached us, but we learn that the docking charge for Shipping will be about one penny per week on the register tonnage. Vessels will not be compelled to enter these docks to discharge. They may discharge outside—though few ships acquainted with the perils of Simon's Bay will do so; but all cargo must be landed in the docks, except in special cases under the Customs' supervision. It is calculated that a Consignee, under the regulations of these new docks, would get his cargo landed at about one shilling per ton—it will probably cost one shilling and sixpence or two shillings more to deliver it in Cape Town. On this point, however, our information is only conjectural. The accommodation afforded by good docks, a patent slip, and all the appliances for discharging and overhauling ships at a place like Cape Town, where, apart from the actual trade, vessels are constantly calling for surveys and repairs, can hardly be over-estimated; and shipowners whose vessels take advantage of the facilities which the new docks at the Cape are calculated to afford, will not object to any charges in reason which the dock authorities may think proper to make. The want of docking accommodation at the Cape has long been felt; and we congratulate all those shipowners whom it may concern that it is about to be fairly supplied.

And in reference to docks we read—The floating dock Bermuda was twice successfully tried during May. On the 20th she lifted the gun-boat *Britomart*, to which some repairs were needed, and on the 26th her Majesty's ship *Racoon*, 22 guns, 1,467 tons, was docked. Ships drawing 21 feet can be taken in, and the accommodation she will thus afford to the fleet of the North American and West Indian station will be most valuable.

But in reference to the fire of the *Aurora* above mentioned, something is said of the law being strengthened unexpectedly by Lord Campbell's Act, which it is expected will reach our Admiralty courts, and then come into operation in a manner that was not expected. Thus we read in a recent number of the *Daily News*.

Lord Campbell's Act is the bugbear of railway companies. By the public, however, it is valued as the only check upon railway directors. At present a Parliamentary Committee is engaged in determining whether or not that Act should be repealed altogether or materially modified. In these circumstances, it is interesting to note the verdict which a special jury has just given in the Court of Common Pleas. A great navigation company has learned that Lord Campbell's Act is not exclusively confined to cases of accidents on railways. The verdict is the more noteworthy, because the obstacles in the way of applying the Act to marine casualties have been frequently said to be insurmountable. Several months ago the steamer *Carnatic* was wrecked in the

Red Sea. She struck on a coral reef during the night, but it was not till the forenoon of the following day that the vessel sank, when some of those on board were drowned. The point at issue was the negligence of the Captain, for whose conduct the Company was responsible. When a railway accident occurs, the negligence can generally be proved with ease, and then the liability of the Company is indisputable. But, when a vessel runs on a rock, or comes into collision with another vessel, the difficulty of bringing the blame directly home to the captain is very great. Thus it has happened that compenaation has but seldom been awarded to the survivors. As regards the *Carnatic*, there was the usual conflict of opinion. A strenuous attempt was made to show that the occurrence was a pure accident. The jury took a different view of the matter, and awarded £3,000 damages. The result is important, inasmuch as, if the decision be upheld on appeal, the liability of shipowners will be more clearly defined.

Those who are interested in light-ship moorings will peruse the following from the *Hants Telegraph*:

It is a matter for wonder that the vessels ride so long at their allotted stations without breaking loose, and herein lies the art of light-ship management. It tells of careful supervision and efficient service that only about one in every ten years is a light-ship known to break away form her moorings. She is usually moored with a single mush-room anchor, weighing between thirty and forty hundred weight, which sinks into the ooze or sand at the bottom of the sea, becoming completely embedded; the cable which holds it would scarcely do for a watch chain, each link being made of one and a half inch iron, and being about seven inches in length. These cables have to undergo a very severe process of testing, each link, before it is made use of for mooring purposes, having to bear a strain equal to a weight of thirty tons. Each vessel is supplied with about two hundred and ten fathoms, a quarter of a mile or so, of this cable. Those which are moored in very deep water have as much more as the depth of water renders necessary. It is by the skilful management of the cable that a light-ship is enabled to ride out the fiercest storm in safety. In smooth weather they have only a short cable out, but when it is rough, and the billows run high, they let out sufficient chain to enable her to mount up to the very top of the great waves. She is never allowed to go to the extreme length of her tether; as she rises she takes as much chain as she wants, still leaving a quantity on the ground, whereby she seldom jerks at the anchor or has a tight strain on the cable. The constant rise and fall of the cable, and the swinging of the vessel round with the tide, often occasion strange combinations, and the great chains have been known to tie themselves in knots, or to do themselves up in such tangled bunches that it was with great difficulty they were disentangled, the latter operation having to be generally performed by means of sledge hammers and anvils.

SOMETHING has been said lately about abbreviating the passage of the channel. We hope for the sake of those who like short sea passages something will come from these meetings. A special meeting of the Folkestone Town Council was held on Monday night, the mayor (Alderman Thomas Caister) in the chair, to hear the report of a deputation appointed to wait on the directors of the South Eastern Railway Company, and on the member for the borough, on the subject of the Channel passage. The town clerk said the directors informed the deputation that up to the beginning of May they intended to oppose the Fowler ferry-boat scheme in connection with the Great Northern of France, but that company made terms with the advocates of the scheme, and the South Eastern, being taken by surprise, dropped their opposition in the Commons, but reserved their right to oppose in the Lords, where they hoped to upset the scheme, and bring forward a plan for procuring all the advantages it offered at a greatly lessened expense. They proposed to extend the harbour of Folkestone and build boats similar to those on the Holyhead service, and so to make the passage in one hour, or the journey between London and Paris in eight hours. Baron Meyer de Rothschild, the member for the borough, promised to oppose the Fowler scheme to the utmost. Resolutions were passed, after a discussion, pledging the town council to support the South Eastern directors, and calling on Baron Meyer de Rothschild also to support the company. A deputation was appointed to wait on the maire and municipality of Boulogne, asking their co-operation.

Also a special meeting of the Town Council of the borough of Folkestone was held on Saturday the 11th ult., to receive the report of the deputation to confer with the Maire and principality of Boulogne, and to affix the corporate seal to a petition to the House of Lords against the International Communication Bill (Fowler's scheme). A letter was received from the Maire of Boulogne, stating that the Chambre de Commerce and the municipality had demanded from their Government the necessary works to render their harbour available for the reception of large steamers at any time. They had several plans prepared for this improvement, one of which could be carried out for £600,000. They hoped their Government would, as usual, take on itself the expense, but if not they would raise the capital privately. Andrecelles was the scene of many marine disasters, and a most unfit site for a harbour; they would ask the House of Lords to hear them in Committee A copy of the letter was ordered to be sent to the directors of the South Eastern Railway Company, and the petition to the House of Lords was sealed.

All this will require piers and pier harbours, which remind us of something having been just done in that way at Eastbourne as appears here—

*Opening of the Eastbourne Pier.*—Tuesday was a red-letter day in the annals of the fashionable little watering-place of Eastbourne, the occasion being the opening of the pier by Lord Edward Cavendish.

The ceremony was marked by considerable pageantry; a grand procession, consisting of the Foresters and Odd Fellows of the town, the fire brigade, the local police, the life-boat and crew, and a long cavalcade of carriages and people on foot, proceeded from the rendezvous, the Sussex Hotel, through the principal thoroughfares to the pier. The parades were lined with spectators, and the sight from the pier, which was gaily bedizened with flags and buntings, was beautiful in the extreme. The dais was erected near the entrance, and amid music and the roar of artillery the pier was declared by Lord Edward open to the public. A grand banquet took place in the evening, at which Lord Edward was present, and simultaneously with this a series of athletic sports took place on the cricket-ground.

Ramsgate seems also to have found the right man, for we learn that the President of the Board of Trade has appointed Captain Braine to succeed Captain Shaw as Harbour-Master, who retires on the 24th inst. Captain Braine, previous to his appointment as Deputy Harbour-Master at Ramsgate, was in the employ of the General Steam Navigation Company, and was well known to be one of their most able and experienced officers. Since his appointment at Ramsgate he has rendered good service, and we have reason for believing that his promotion to the office of Harbour-Master will give satisfaction to all parties.

The *Hants. Telegraph* supplies these remarks on the comparative merits of the *Captain* and the *Monarch* turret ships.

While the Navy Estimates and the hundred topics incidental to them were sharply discussed in Parliament, a practical experiment of infinite importance to the Navy itself was proceeding at sea. The *Monarch* and the *Captain*—vessels practically representing two distinct and, as we may still say, incompatible principles of naval architecture—were despatched on a cruise in order that their respective merits or demerits might be ascertained by actual trial. The *Captain*—as champion of the pure turret system—was placed at a double disadvantage. She was unsuccessfully built, and she was handled under unfavourable circumstances. She proved, by what fault or accident we cannot say, unable to carry her intended weights, and was, according to professional calculation, a smaller vessel than she should have been by at least 800 tons. It is impossible, therefore, to say how far any inferiority detected in her performances may not have been due to this architectural error, while it also happened that, such as she was, she had not the chance of appearing to the best advantage. She was newly commissioned—that is to say, neither her officers, nor sailors, nor engineers knew her best points or what could be got out of her. In these respects a ship resembles a living creature. Every vessel has a character—we might also say a temper—of its own; and this temper it takes some time as well as trial to ascertain. Now, in the *Monarch* officers and crew were used to the ship, and had learnt in her voyage across the Atlantic how to bring out her best qualities, whereas in the *Captain* this valuable advantage was altogether wanting.

The results, therefore, are not quite conclusive, and yet they appear, upon the whole to have produced a very decisive impression. That impression is that the *Monarch* has more advantages over the *Captain* than the *Captain* over the *Monarch*. and yet on two points of cardinal importance the superiority of the *Captain* is admitted. In action with an enemy she is calculated to inflict more injury and suffer less. The *Monarch* is decidedly faster, handier, and cheaper than the *Captain*—in other words, consumes less fuel, and can make a ton of coal go further. She has better accommodation for her crew, and is, except for a defect connected with her screw, in every respect the better cruiser. Even where the broadside system shows to least advantage she has some points of superiority. She has more protection against "end on" fire, and greater power of offence under the same circumstances. Besides this, she has, of course, the advantage inseparable from the height of her guns, and could command an enemy's decks in a manner beyond the capacities of the *Captain*. On the other hand, in a broadside fight the *Captain* would be at once safer and stronger. There is less of her to hit, she can train her guns more freely, and she is at all times more in readiness for immediate action. The *Monarch* would require a certain time to strip for combat; the *Captain* is at all hours in fighting trim. On the whole it appears that more advantages are combined in the *Monarch* than in the *Captain;* but the conditions of the trial were, as we have said, not quite even, and the deduction, as it seems to us, is that the principles and objects of the rival systems are not to be absolutely combined.

Though the *Monarch* carries her guns in turrets, she is practically, in construction and arrangement, a broadside vessel; whereas the *Captain*, though not a perfect turret ship, has rejected, for the most part, the features of the broadside model. The *Monarch*, therefore, is the better cruiser by far; the *Captain* the better fighting ship, though not by so great a difference. If the *Captain* had not been built to go to sea, she would have been all the more formidable in action; if the *Monarch* could have surrendered some points of a man-of-war, she would have been all the better seaboat. Of course, it is highly desirable to combine these qualifications to the utmost extent, but the question is if they can ever be so far united as to allow of our dispensing with variety in our models. Mr. Reed has only made the *Monarch* a little better than the *Captain* by sacrificing something—though it is not much—of her fighting power. Captain Coles has adhered more steadfastly to his principle, but with a slighter reduction of its drawbacks. Unluckily, even this long-expected experiment has not been conducted on conditions quite satisfactory, and if at present the *Monarch*, upon the whole, may be thought to have beaten the *Captain*, it seems probable that the *Captain* may have a greater margin for improvement than her rival.—*Times.*

We have received, near the twelfth hour, a volume entitled, "Physical Geography," by J. K. Laughton, M.A., etc., of the Royal Naval College; and another, "The Wind in his Circuits," by Lieut. R. H. Armit, R. N.: both published by Potter, of the Poultry. We hope to see them noticed in our next. We much approve of Mr. Laughton's preface in his remarks on the neglect of the subject.

THE

# NAUTICAL MAGAZINE

AND

# NAVAL CHRONICLE.

## AUGUST, 1870.

### A Bit of a Sailor's Mind.—*Bit the First.*

*To the Editor of the Nautical Magazine.*

Sir,—In the early days of the *Nautical*, A.D. 1832 to 1840, a correspondent foretells that, "before thirty years," with the then decline of discipline in the Merchant Service, not a single South Sea whaler would be sailing out of England.

I think it must be now allowed that this prediction has been fully verified. Strange that Americans can carry on the trade at a profit. I could name another trade from which we are excluded by *our want of discipline* alone.

Is it any wonder that there is no obedience in a merchant ship when the sailor can assault his master or mate with impunity; and even in organized mutiny, such as running away with the ship, confining the officers, etc., they get off with a *few days' imprisonment.* A master gets even stabbed to death, and the murderer only gets *two years of confinement!*

Few shipmasters care to prosecute, as it is not politic; knowing the animus that prevails against them, to be always in favour of the favourites of the law!

A shipmaster just returned with his lip cut as though he had once a hairlip, got it thus. Some five days after some of the crew had deserted, one who had left a pair of trousers behind, comes up the gangway, and meets the captain who is somewhat dazed at the fellow's impudence and insolence. He is told he has no business on board; so he brutally assaults the captain, cutting his lip from the nose down, and tries to gouge out his eyes! the mates are afraid to interfere, and the concern is referred to the consul, who orders that the man be regularly discharged, query *fees*, etc. It is rather curious that on discharge of a

crew at the Mercantile Marine Offices, the discharges are made out, and V.G. placed for every sailor's ability and conduct, which you are *requested* to sign, simply for having escaped with your life!

Having only an hour and a half to pay off a large crew of sea lawyers, backed by the shipping master in demanding V.G. certificates, though the mates had been so afraid of their threats that they had never dared venture into the forecastle to call them, the thought struck me if only an hour and a half can be allowed to pay off a crew now what will become of the whole government system of crimping if we have war and sail in convoys.

I took a new vessel, and a foreigner bought the next in the yard. He ships his crew when and where he can, and pays about half what I have to pay as wages. The government monopoly in these free trade times, has quite altered the law of supply and demand, as foreigners can fill up their vacancies at their own rate, and this in a great measure accounts for the number of English capitalists investing in *foreign bottoms*. Why is a greenhorn of no maritime experience allowed to frame a law of seven hundred contradictory sections? Will he tell the House which are the MIDCHAINS.

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## OUR SEA-MARKS.—I. *Lighthouses.*

NOT the least among those conditions which conduce to our national prosperity, and help to raise our country to the proud position she occupies among the nations of the world, is the excellent marking of her coasts with lights and beacons and the consequent facilities for those coasts being more easily and safely reached. Navigation all round Great Britain is exposed to so much difficulty and danger that but for some such aid our shores could never be approached with impunity. In the days when we were not on such good terms with all the world as at present, we may be sure that the rocks and shoals, the narrow and tortuous channels, the cross currents and puzzling tides of our coasts, did us good service in keeping our enemies at a respectful distance, and relieving us from some unwelcome visits of our different neighbours. Now, however, we have no enemy, and are cultivating friendly relations with the whole world; so we open our arms to all comers, help them to reach our ports in safety by pointing out as far as we are able all the dangers which threaten ships as they approach our shores, holding out, as it were, the friendly hand of assistance to bring all voyagers safely through the treacherous waters that surround us.

We all know that in mid-ocean sand banks and rocks are rarely found; that the mariner has the whole expanse of water before him for his channel; that there the tides are as nothing compared with those which are made so perplexing by the irregularities of coast-line. We know too that however qualified a man may be to guide a ship

across the broad waters of the Atlantic, to double the Cape of Storms, or even to circumnavigate the globe, he finds on nearing land that unless he can trust the guidance of his vessel to one of local knowledge, an immense amount of additional exertion is required on his part, and that although he may have weathered the most terrific storms where he had plenty of sea-room, yet now he is hemmed in on all sides with threatening dangers. In fact, he has to exercise great care and vigilance, and, actually feeling his way with the lead, can only proceed very slowly and cautiously in order that his long and hitherto successful voyage may not end disastrously, by the ship ending out her voyage on a sand bank, or dashing herself against a hidden rock, in the very sight of the haven where she would be.

Of course, as we have said, our readers know all this, but our motive in recalling it to their minds is to bring them to consider the subject before us as we regard it, for it certainly is not time wasted to give some consideration to this important matter in all its bearings.

It can easily be imagined how, as civilization and navigation have advanced in the world, different nations found out how much mariners could be assisted by guiding marks set up on the shore. The sailors even then made good use of the trees and conspicuous buildings on land, and of other distinctive features of the coast, but they wanted something more reliable, more readily seen, and above all they wanted lights at night, to enable them to navigate their vessels safely through the surrounding dangers, and to indicate the neighbourhood to them. So gradually our coast-line began to be dotted with "beacon-lights, marks, and signs of the sea," and as the world progressed, these marks became more and more general, and each day to the present time new lights, new beacons, new buoys, are being placed on nearly all the sea-coasts of the world for the benefit of those who go down to the sea in ships.

Such facts as we possess on this most interesting subject as affecting our own country we propose to string together under the comprehensive title of "our sea-marks," and in sundry articles to talk about lighthouses, light-ships, beacons, buoys, and fog signals.

Before entering directly upon the first of our divisions, viz., lighthouses, a few words concerning the authorities who are charged with the establishment and maintenance of our sea-marks may not be altogether inappropriate.

To ask any of our readers if they know of the existence in England of such a body as the Corporation of the Trinity House is quite unnecessary. Of course they do. For ourselves, we must say we have long rejoiced in this fine old Corporation, especially so when we consider that it is an institution founded centuries back; one which has safely kept its course down to our own days with the quaint old ships of its coat of arms, having lived through all kinds of weather of good and evil report, having throughout fulfilled its mission admirably, extending its usefulness as civilization advanced, and now holding up its venerable head in our sight a credit to the country, honoured and respected by all who are brought into contact with it.

It is this Corporation that is charged with marking the shores of England with its lights, buoys, and beacons, and no small meed of praise is due to the Elder Brethren who at different times have constituted the Board of the Trinity House, for having gradually developed the system of sea-marks from the first rude suggestions of necessity, to the elaborate construction it has become in these later days. The Trinity House service to the country is as extensive as it is efficiently rendered. The smart, serviceable yachts employed by that Board may be observed at all times and places round the coast, relieving light-ships and lighthouses on rock foundations, placing buoys, surveying sands, removing wrecks out of the track of shipping, and performing many other useful duties about our shores.

The Commissioners of Northern Lights at Edinburgh, and the Commissioners of Irish Lights at Dublin, are respectively charged with, and as efficiently perform the same duties on the Scotch and Irish coasts, subject to a discretionary supervision by the Trinity House; and the joint efforts of the three Boards contrive so to illuminate our shores in the darkness of night, and to indicate the whereabouts of hidden dangers by day, that the nation at large has real cause to be thankful for their services.

Let us now turn to the lighthouses of Great Britain. In the United Kingdom there are upwards of four hundred lighthouses, of all sorts and sizes. Many of them are small and insignificant, meant to serve merely local purposes, such as to indicate the state of the tide, or to inform ships if the bar of a harbour can be safely passed, or to light fishermen from sea to their homes when night comes on, etc. But the lighthouses we would speak of, those splendid buildings with which most of us are familiar, and which are conspicuous objects on the projecting headlands, or which raise their heads in solitary pride in the midst of furious waves, always threatening and frequently breaking over those rocks on which the towers stand. These lights might be considered national, and the others merely local; the former are meant to serve all ships of all lands, the latter are intended more for the benefit of individuals, and are maintained mostly from private sources.

Did space permit our readers might have some remarkable accounts of the building of some of these lighthouses. On seeing one of them standing boldly up in the sea, its waves breaking over it, one involuntarily exclaims, "How could that structure ever have been placed there?" And it is a question too that may well be asked. The story of the Eddystone is familiar to most of us. How its architect, Winstanley, the mercer, first raised a wooden tower, and had such confidence in its strength, that he expressed the desire to be in it in the fiercest storm that was ever known. And it chanced that he went to the lighthouse one day to see some repairs that were going on, and such a storm as he wished for did come to test the strength of his work. But, alas! the furious sea was too much for it: the waves swept away the tower, with Winstanley himself in it, and left the rock to itself! Then they might remember John Rudyard's subsequent

tower, which lasted but forty-seven years, and was then destroyed by fire; but Smeaton's stone lighthouse, built in 1759, stands as firm now as then, after the lapse of more than a century. The Bell and Skerryvore rocks, in Scotland, the Bishop rock, off Scilly, the Smalls rock, in the Bristol Channel, the Hanois rock, off Guernsey, and lastly the Wolf rock, off the Land's End, are perhaps the most remarkable structures of this kind.

The difficulties which are encountered in the work of building such lighthouses on isolated rocks can hardly be imagined, some of them many miles from land. The work of construction has to be done when only the tide permits, and as most of these rocks are covered or nearly covered and uncovered alternately by the tide, detached portions have to be taken out only in fine weather, and only at low water, but very little can be done at a time. Besides this, the work has to be of a specially excellent and strong character to fit it for its exposed position. The workmen have to undergo great risk, in some cases having to live in a floating barrack near the rock, always working in cork jackets, always on the look out for the sea getting up, and generally having to be hauled off the rock through huge breaking waves. The lighthouses on land are not more remarkable than many other buildings for difficulty of construction, except perhaps for a certain solidity and compactness which do not characterise many of our modern structures; but a word or two concerning houses built upon sand will not be out of place in the consideration of this subject. On the Maplin sands, at the mouth of the Thames, are erected some pile lighthouses, the lower parts of which only consist of open framework. A pile lighthouse consists of nine wrought iron piles, with a screw at the bottom of each by which they are screwed into the sand. These piles are braced together above water and principally at their upper part, by cross braces of wood and iron, and on the top of the framework are the keepers' dwelling rooms, and above them the lantern itself. These pile lighthouses are most useful where no firmer foundation can be obtained than sand. Their stability has been well proved and they present no surface for the sea to work upon. The keepers see below them "the sands and yeasty surges mix," and the surf harmlessly expending itself in foam and spray, but their house stands on its shifting bed as firmly indeed as if it were built on a rock!

The general architecture of all lighthouses is much to be admired, the chief characteristic about them being their beautiful simplicity and their admirable fitness for the purpose which they are intended to fulfil.

Let us now turn our attention to the light shewn from these towers. Our space allows us to make only general observations, for were we to go into detail, our description would have to be constantly "continued in our next." The light most used at present is obtained from rapeseed oil, which, after many trials and experiments with numerous other sources of light, has been found to yield the cheapest and most reliable light. The electric light is in use at Dungeness, and a very splendid light it is. But at present this brilliant luminary

is in its infancy and is consequently rather capricious and wayward, and has the character of being a light not to be entirely relied on. However, subtle brains and pliant fingers are gradually developing its virtue, making it more manageable and serviceable for man's purposes, and we may yet hope that in time numerous such other vivid rays will dart their penetrating power over the sea from our British headlands. There has been much said about making gas useful for lighthouse illumination, and probably where it can be readily formed and conveniently used it may hereafter be tried, but neither the electric light nor gas could be made serviceable for rock stations where space is so exceedingly limited, the apparatus for the production of either of these lights requiring much room. A great many wild schemes have been suggested for lighting lighthouses, such as gas pipes under the sea, electric wires all round the coast connecting every lighthouse, magnesium, lime light, Petroleum, paraffin, and a host of other proposals, and the Authorities, with the assistance of scientific men, have considered all these schemes, and in many cases have applied practical tests. But they have all been found wanting in some important particular, and have consequently not been adopted.

It is not only that the most powerful light is required for lighthouse illumination, but in addition to this every means must be taken for utilising every particle of light even to the fullest extent. There are two modes in use for this purpose, one by means of reflectors, and hence called the Catoptric system, and the other by glass lenses, called the Dioptric. For a good catoptric sea light twenty or thirty argand lamps in a plane are employed, each with a reflector behind it. It is also necessary that the reflector be of perfect form or mathematical figure, and the lamp be placed exactly in focus, so that the reflector gathers up all the light and throws it out seaward. This is a very good system, and worked well for a long period, until the glass lens appeared and was found so excellent.

In the Dioptric system one light only is used:—a very powerful flame produced by three or four concentric wicks one inside the other, all of them being constantly deluged with oil. About three feet from the flame is fixed a central band of glass, called the lenticular belt, which magnifies the light considerably, and above and below are arranged a number of prisms to intercept the rays from being lost outside the tower, and these they bend so that their light is directed on to the sea horizon. Optical science has gone a long way in this department, and has reached a state of perfection in our Dioptric lighting apparatus that forms a very striking contrast with the old coal fires which were in such general use about sixty or seventy years ago. It is surprising how accurately the lights can now be defined. Perhaps it is required that a light must be shaded with red on one side of a certain bearing, and that on the other it be bright. The cutting of the light is then so sharp that it is said to be possible if a ship were on the line, to see the red light on one side and the white light on the other, or as an old Trinity lights-man said to the writer, "You could a'most see red with one eye and white with t'other, Sir, if you got on the line."

Another remarkable feature of lighthouse illumination is the variety of lights: there are fixed and flashing, revolving and intermittent, single and double lights, and these are further varied by colours of red, white, or green, so that perfect distinction is attained for every light. At the Wolf Rock for instance something rather novel has just been introduced in the shape of an alternately red and white revolving light, and all who see it, speak of it as a very splendid light.

The attendants at these lighthouses must not be passed by without some little notice. Many a seaman as he hails the friendly light shining across the dark waters has good reason to bless the silent watchman who is keeping the light well trimmed and burning, and to the honour of the light service generally be it said, that it is a very, very rare occurrence for a light keeper to neglect his duty. Even with the electric light which requires much unremitting attention one instance only in several years has occurred of negligence on the part of the keeper. There is a healthy *esprit de corps* in the service which makes the men take a hearty interest in their work, and they light up punctually at sunset, maintain a good light all night,—dividing the night into watches, two or three according to the length of the dark period,—and keep everything scrupulously clean and tidy. Any visitor, official or otherwise, will always find a lighthouse establishment in first-rate order. The rock stations are rather lonely for the men. But at these stations there are always three together, and each has a relief of a month ashore four times a year. Some men prefer a lonely rock lighthouse to any other, while those who do not like it have only to serve a temporary apprenticeship at one of these stations, and by good conduct may soon obtain a transfer to a more pleasant lighthouse, of which latter kind there are many about our seaside neighbourhood. Life in a lighthouse is quiet and without excitement, the keepers are well paid, and as a rule thoughtful and intelligent men. The little cottages attached to lighthouses on land are generally very comfortably furnished, partly by the authorities and partly by the keepers themselves, so that after some little changing about in the early part of his service a light keeper may live happily and peacefully with his wife and family

"Far from the mad'ning crowd's ignoble strife;"

and conscientiously performing his useful and humane duty

"Along the cool sequestered vale of life,
May keep the noiseless tenour of his way."

The expense of maintaining these lights at present falls on the shipping which frequent our ports, and it has been recently debated in the House of Commons, and much talked about among nautical folks, whether the cost should not be thrown upon the country so as to relieve shipowners from all payment on account of lights. With this question we have no concern at present, but another which seems to have been agitated at the same time, calling in question the present

system of lighthouse management and imputing blame to those charged with the duty, appears to us to be a mistake. Our coasts are the best lighted in the world, there is plenty of government supervision over the lighthouse authorities, and there is no complaint of a want of more lights or of greater efficiency in those at present established. We can hardly conceive a more striking instance of the advisability of letting well alone, than in leaving the lighting of our coasts in the hands of those who for so long a period have performed the duty to the admiration of all.

[The subject of Light-ships will perhaps be our next consideration.]

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## The Geological features of the Mediterranean.

The geological history of the Mediterranean is naturally mixed up with that of our globe, the age of which, as well as its origin, it is impossible to decide, although men may agree in adducing an opinion thereon from the stratifications which are formed by its crust. Nor is it permitted us to say how and in what manner it was peopled in all parts of its surface; for we have no more than the fossil remains of animals occasionally found in caverns or sedimentary deposits, or geological situations, to guide us, that reveal nothing more than their existence before a deluge; for many of their species are at present entirely unknown on the face of the earth. And since there are no other pre-historic authorities than these, we are thrown on conjecture and the account handed down to us by sacred or profane books.

Respecting the Mediterranean, its present configuration, or nearly so, seems to be the same as that known to the earliest historians and has been often handed down to us in fable; for we have nothing imparted in positive terms, as to when that great rupture took place in the isthmus which united Africa to Europe; a proof that this separation must have occurred previous to their time.

The exploit attributed to Hercules,* that same mysterious person who figured among the Phœnicians, who among the Greeks and Romans

* Herculis Columnæ.—We have here the myth attributing to Hercules the exploit by which the columns of Hercules obtained their name. These two lofty mountains, frequently called the pillars of Hercules, are situate one on the most southern extremity of Spain, and the other on the opposite part of Africa. They were called by the ancients *Abyla* and Calpe, and are considered the boundaries of the labours of Hercules. According to ancient tradition they were joined together till they were severed by the arm of the hero, and a communication opened between the Mediterranean and Atlantic Sea. So much for tradition which does not touch the formation of the Strait by the separation or rupture of the mountain. Doubtless this was effected on the occasion of some great cataclysm or convulsion of nature long before the Cimbrian deluge, 300 years before the Christian era, and must be left in that prehistoric time how far before the Deluge itself we shall leave to our author and the geologists. It is considered from the similarity of the strata in the two huge cliffs that they were once united.

sometimes as a gigantic athlete overpowering wild beasts, again as a great navigator and conqueror, and sometimes as a demigod with power to divide that isthmus and to inscribe prodigious feats on two columns to perpetuate their memory may after all have its origin in that cataclysm which caused the rupture, and by tradition was made known to the earliest writers of history, who in their turn invested this transcendant even with the ornament of fable.

With more reason we have a right to blame the Arabian writer Edrisi, for his questionable geography, when he supposes that Alexander the Great directed the strait to be cut through the isthmus, so as to form a communication between the two seas. The grossest of errors, because in the time of that powerful monarch, ships of his contemporaries and predecessors were passing and repassing through the waters of the strait. It will be necessary then to join with the majority of geologists, that in consequence of some great effort of nature, or extraordinary dislocation the isthmus that separated the seas was broken, and the rupture might have been produced by the effort of the external as well as the internal sea. And there is reason for this conclusion since the geological character of the isthmus is equally displayed by the two capes which form the shore of the strait.

The prevalent opinion is that the Mediterranean was a huge lake, the level of which was much below that of the Atlantic; that its waters were suddenly increased by a deluge spoken of by history, or perhaps in consequence of some irruption from the Euxine by which the lowest ground of the isthmus might have been washed away, and that the incessant effect of the waves and current went on widening the channel as it was opened until it attained the condition in which it appears to us.

If we consider the configuration of the Mediterranean and study its islands and peninsulas, its bays and promontories, we must conclude that this sea must have undergone the perturbations and changes assigned to our planet, now covering all its islands and low grounds, converting them into a sea of much larger proportions than it is now, depressing even those waters both by evaporation and very considerable absorptions. This would even reduce it to a lake much less than it now is, in which the archipelagoes would be continents, in fact that it was occasionally overflowed by the discharges of its rivers and contiguous seas, thus destroying or breaking up continents, the higher grounds of which are now seen by us as islands and peninsulas. Such seem to have been the catastrophes and metamorphoses which the shores of the Mediterranean have suffered; the successive lapse of ages rendering it a difficult task to trace those changes and distinguish them from each other.

And again that the changes which the shore of this sea have undergone are not concluded is also quite evident. Let us consider the historical dates of these agents, or let us compare the ancient configuration of its shores with that which we now see. We shall then find, if in general form it has not suffered change, still its coast-line is undergoing continual alteration, not only from the action of the sea, but also

from the powerful influence of rains. We do not find in any degree those shores described by Homer and other poets, now in the maps left us by the ancients. The difference at present is so great that we cannot find the localities which they quote. Yet it is undeniable that while volcanic action has destroyed whole districts, has buried cities and thrown up mountains, sunk some islands and raised others, the silt and soil thrown out by rivers and transported by the sea have entirely closed up harbours and entirely changed their shores.

On the Iberian shore we have seen daily the advance of the Ebro producing shoals at its mouth. The sands of the Valencia coast are increasing, and we now find settlements where formerly there was sea. Barceloneta is built on sands cast up by the mouth of the Llobregat, and the church of Santa Maria del Mar was close to the sea. Aigues Mortes also, which in the Thirteenth century was a port is now four miles in land, and much of the ground forming the vineyards of Agda was formerly the bottom of the sea. The tower of San Luis, near to which the king embarked for Palestine is now more than a league from the bar of the Rhone. The delta of the Tevera is continually advancing, leaving Ostia and port Claudius well inland, and between that river and Terracina the coast is strewn with the remains of towers which were once washed by the sea.

The Adriatic, as the continuation of the receptacles of the Po, receives all the alluvium which that river. like all the rest that descend from the Alps and mountains of Carniola, deposit there, its sands advancing in such a manner. that Aguilea, Adria, and Ravenna, which used to stand on the sea shore are now far inland. Hence there is good reason for concluding that such deposits have produced the greater part of Lombardy. In support of the possibility of this assumption it has been seen that in the space of 400 years, from 1200 to 1600, the delta of the Po, has advanced more than 9,000 metres (9,876 yards, or more than five and a half English miles) into the sea; and that since then so rapid has been the progress of invasion by alluvial deposit that it threatens to shoal up a portion of the gulf.

If we turn our attention to the Grecian Archipelago and other parts, such as the Columbretes and the Œolian isles, we shall see that there is much volcanic origin shewing the effects of great convulsions by which they have been thrust through the crust of the earth. The appearance of some is known as well as the disappearance of others, and we have seen in less than five months the appearance and disappearance of one in particular. Some of their ports are nothing more than volcanic craters filled by the sea, such as port Tofino of Colibra, one of the Columbretes and the bay of Santorin, the remains of a submerged crater, although one not extinguished for it often shows symptoms of eruption. In the opinion of some geologists many of the islands of the Ægean sea are the peaks of volcanic mountains, the summits of which were submerged by the eruptions of the Black Sea.

The valley now submerged by the Meander was once the *Latmus Sinus* (the Latmus gulf) of former years, the Salt lake of Denizli at present which covers the remains of Heraclea. From the invasion of

its sands it resulted that the isle Laide, where the Athenian ships anchored 412 years before the time of our Saviour, formed a part of the ground in the valley, and between the remains of the celebrated Miletus and the plain, a hill of considerable height was thrown up.

With respect to the coast of Syria, it is known that in some few places, as at Beyrout and its vicinity, the sea has advanced covering ancient buildings, while in other places it has retreated considerably, so that the island of Tire (? Tyre) now forms part of the continent, and as to the Dead Sea and Sea of Galilee shew enormous depressions of the valley of the Jordan in which lie submerged cities, as Sodom and Gomorrah.

Then, looking at ancient Egypt, we see that it is nothing more than a huge alluvium deposited by the Nile,* with an abundance of islands standing in lakes between firm ground and a cordon downs which border the shore, the most remarkable being the Mareotis, Burlos, and Menzaleh. It is considered that all those lakes and their overflowed ground formed a large gulf on which Thebes was situated, and that the present Pharos peninsula was an islet far distant from the continent.

Again, when we come to the two Syrtes and compare them with the descriptions left us by the ancients, we must conclude that they have been much reduced, the banks in them being converted into extensive plains, that formerly extended into the Great Desert, possibly in former days composing another Mediterranean sea, the entrance to which was formed by the Greater Syrtes. And if from the Syrtes we come to the bay of Tunis, we find similar revolutions. Here, we even see beneath the waters the remains of hydraulic constructions of the Carthagenians, while the lake of Tunis is going on visibly filling up, and the delicious gardens of El Marsa, in former days the port of the populous Carthage.

On the coast of Algiers, more firm and mountainous, no alteration of territory is perceived, nor retreat of the sea, so clearly marked as those to which we have alluded, because we find there no river of importance, but we find many changes in the coast lines of the great Mediterranean islands.

But how much we are left in surprise on finding the great changes shown on the northern shores of the Mediterranean in contrast with those of the south. Here we have nearly a straight line of coast from west to east, with few sinuosities or islands; while the other shews a multitude of peninsulas, gulfs, and archipelagoes: and there is ample evidence that the dislocation of the northern shore has been far more than double that of the southern.

* Nile.—The sources of the Nile were entirely unknown to the ancients, and in their entirety have only been recently made known to us by Abyssinian travels of Sir Thomas Baker. It flows through the middle of Egypt in a northern direction, but its second overflow was a riddle until it was explained by that gentleman. It falls into the Mediterranean by several mouths. The most eastern is called the Pelusium bank, and the most western is called the Canopic mouth. The Nile begins its most fertile rise in May increasing for one hundred days, and is often dangerous in consequence of its second overflow.

And if from the shores, we look further to the countries within them, we generally find that they are high from one end to the other: but that those in the northern parts are much more so, and more extensive than those of the south. In the former we perceive the great mountain chains of the Apenines, the Alps, the Pyrennes, those of Spain, and other secondary reaching elevations nearly to ten thousand feet, and as a kind of appendage to them, are the islands of Corsica, Sardinia, Sicily, the Morea, and Candia, rising to heights from six to more than nine thousand feet, while on the southern shore there is only the Atlas range, which crossing the territory of Tunis ends on the coast of Morocco, after following the Barbary shore.

The ramifications of these cordilleras which send off ranges to the sea shore, mostly forming the nucleus of the European coast give rise to the peninsulas of Italy, and the Morea, Corsica, Sardinia, and Sicily. Let it also be observed in passing that while on the southern shore there are no islands, or very trifling ones, on the opposite shore are the largest that are known in this sea, besides numerous groups of all sizes and heights.

It may also be observed that in the south no rivers excepting the Nile are formed, and consequently no deposits of alluvium which have such formidable effects as in the north, where the cordilleras leave deep valleys between them, by which great rivers take their courses, bearing those large deposits of lime and silt which disfigure them. Such are the Ebro, the Rodano, Var, Arno, Tiber, Po, etc., besides the Danube, the Don and Dniester, the huge waters of which fall into the Black Sea, the Bosphorus, and Hellespont.

## The Mediterranean Climate.

Excepting some small districts the climate of the Mediterranean is particularly salubrious, and its temperature well adapted to animal and vegetable life, occupying as it does a zone between the latitude of 46° and 30° north. Hence, on its southern shores a temperature nearly that of the tropics is found, which admits of the cultivation of exotic plants of the hottest climates, while on the northern, although occasionally they may bear somewhat of the cold of more northern climes, the fruit of the temperate and higher latitudes may be cultivated, and notwithstanding these most remarkable changes of climate in a sea of moderate extent, the healthiness of its coasts is eminently considerable for a maritime life.

From thermometrical observations made on both coasts, the mean temperature has been deduced of about 16° with variations as much as 32°, the lower range corresponding with the presence of northerly winds both of the N.W. and N.E. quarters in winter, and the highest with those of the opposite quarters in the warm weather, the range a little higher when S.E. or southerly winds prevail, the Sirocco, Simoom, or Zamiel.

The changes of temperature may be considered sudden on the

shores of the Mediterranean, and more especially on the northern, which is commanded by some high land perpetually covered with snow; a mere change of wind being sufficient to lower the thermometer from 30° to 15° R. On the African coast snow is scarcely known, and the cold is only felt when the wind is from the northward. In consequence, in every part of it the finest fruit is raised, which is successively sought after by those who live on other shores, and those medicinal plants, gums, and aromatic herbs are grown for the benefit of places in higher latitudes.

From the Flora when we pass to the Fauna of the Mediterranean, what an abundance of species we find on its shores and their adjacent heights. In respect of mankind, no climate can be found better adapted for man than those of the Mediterranean shores, and to this is no doubt to be attributed that these shores have been from the remotest antiquity the seat of large empires.

It seems to be admitted that the Caucasian race peopled its shores, the Syrian Arabic on the south, and others on the north. And although the mixture of these primitive races have been infinite, those who study such subjects classify the people of these shores in three distinct families, the Syro-Arabic which inhabit the shore of Asia Minor, Egypt, and all the African coast, the Helenic, and the Latins which people the European shores.

These several families which not long ago were subdivided into numerous kingdoms, and republican governments, in these days from the exigencies of the time have been collecting under but very few crowned heads, forming large bodies which now occupy the Mediterranean shores. Thus we see those of Europe and its adjacent islands belong to Spain, France, Italy, Rome, Austria, Greece and Turkey; and those of Asia and Africa of the sect of Mahomet, divided into vice-royalties, etc., a small part belonging to the empire of Morocco, and another to France by recent conquest.

## Mediterranean Hydrography.

The beautiful sheet of water which forms this sea is of some considerable extent, but yet very secondary when compared with the ocean.

Scattered over with numerous islands which interrupt its continuity, we find among them certain marks which serve as guides in the distinction of races that people its shores. In these days the Mediterranean is an international lake, the shores of which are not only used by its own people but also by those beyond the Straits. Favoured by a mild climate, the varied produce of its shores attract those who dwell beyond them, to visit them for the sake of that produce, and there is established a supremely active commerce.

Although the tranquillity of its surface is almost proverbial as well as the clearness of its skies, those beautiful evenings so often sung by poets do not always prevail there, for even in the midst of summer, the most experienced navigator has to encounter gales which require

all his skill to outlive. Nor are its waters always so pacific as they are commonly supposed to be, for the most powerful ships are often sorely tried by them. History informs us of powerful squadrons being severely tried by them, especially in the Gulf of Lyons, where the English ships at the blockade of Toulon experienced rough weather during the Continental war, frequently being compelled to take refuge in Minorca or Sardinia, to avoid the heavy sea which is raised in that gulf. Indeed it is well known that the Mediterranean Sea under the fiery northern gales is most trying to seamen. Confined within its narrow limits, there is but small space from its northern to its southern shore for a ship to labour in to keep clear of them when the waves are running high, and at so short a distance apart giving no room for ships to move in, so different from the ocean where there is abundance of room in which they can move freely, and with little trouble to their crews. And again on the other hand from the peculiar conformation of the Mediterranean, and its projecting capes considerable derangements of atmospherical currents are produced, and opposing waves get up forming that confusion which to small vessels becomes most dangerous.

Fortunately for the navigator this sea is made up of a series of short spaces, so that refuge is soon found in some one or other of its innumerable ports, or he might find shelter in bad weather under the lee of some island or cape.

The remarkable blue colour of its waters when in a quiet condition is another interesting feature, as well as their phosphorescent state at night. In respect of its blue colour this does not hold in the Adriatic, the water of which assumes a greenish tint, while on the coast of Egypt it has a reddish tint for evident reasons.

Again with respect to the brilliancy which is common to it on still nights. In the opinion of naturalists this is owing to the decomposition of animal substances, and to the great variety of animalculæ (infusoria) which hanging to the blades of the oars and the bows and sides of moving vessels, give forth their lustre. As hydrography goes hand in hand with geography, and this precedes that, it is right that we should seek among ancient geographers the origin of modern hydrography.

In the east on the shores of Asia Minor we must look for the cradle of geography. To Moses are due our very first ideas on this subject, for to him we owe our first knowledge of the land of the Patriarchs, while to Homer we are indebted for the first description of the world as it was then known. This inspired writer making use of his own knowledge, and availing himself of the tradition of his predecessors, although it may be wrapped up in fables transmitted by the Greeks, has left us his Iliad and Odyssey which contain the history of his time.

Thus then the Homeric geography being wrapped up in the history of his day, it is difficult to deduct from it what would be the hydrography of the Mediterranean, because all its descriptions of wars are wrapped up in fiction. According to his writings the Mediterranean

would be comprised in the Sea of Syria, the Ægean and the Grecian; beyond Sicily was that immense estuary called the ocean. Corsica was the limit of the civilised world; the coasts of Hesperia and consequently the Galias, Iberia and Mauritania, were beyond the seas, they were in fact all ultramarine countries then.

The Mamertine Strait was considered very dangerous in those days the renowned rock of Scylla, the whirlpool of Charybdis, and the floating islets of Eolus, were so many more bugbears which the Greek navigators of those days always avoided.

And while Hellenic hydrography was so limited, a people daring and fond of trade came from the coast of Syria at a place called Tyre, then the Queen of the Seas and the port of which was the principal market of Asia and Egypt, and to which the principal caravans resorted from Aden with the rich produce of Asia. This people who navigated the open sea, and who in the estimation of some knew the use of the chart, managed to contribute much to the fancied dangers which in the opinion of the Greeks, infested the western part of the Mediterranean, spurning these puerile ideas sought the rich trade of Iberia, and founded colonies such as Utica, Carthage, Cadiz, and others beyond the pillars of Hercules. Consequently we must attribute to these Phœnicians some acquaintance with hydrography.

These clever and daring navigators who never took foreigners in their ships, and who as we are informed sunk all those whom they met with in order to make themselves masters of the sea and to keep its trade from others, for a long time monopolized the trade of the Mediterranean; until established on the coasts of Africa, Corsica, Sardinia, and the shores of Spain obtained a general knowledge of the Mediterranean: their navigation extending its limits greatly among the Greeks and Romans, and geography then became considerably extended.

That the Phœnicians well knew the art of navigation is proved by the voyage of Hannon, a celebrated Carthaginian general, who with a powerful armada and large number of colonists, overran Mauritania and part of Western Africa even beyond the Gulf of Guinea, forming factories along the coasts and visiting even the Fortunate islands (Canary Islands).

After this the Persian wars took place in which the Carthaginians and Romans carried arms to all parts of the Western Mediterranean, disputing dominion with each other, and geography was thus advanced another step, so that this science commencing in the east advanced although with a slow step towards the west.

The Greeks by their internal dissensions and their foreign wars had already been in quest of a new country, dropping their fabulous history and improving geography. The Corinthians, who were the inventors of the Triremes (the ship of three tiers of oars!), colonized Sicily: others emigrated to Southern Hesperia which they named *Grecia Magna:* they overrun Sardinia, Corsica, and France; they landed their forces at Marseilles, and continued on to the columns of Hercules: they passed these and came in contact with the Phœnicians

from whom without doubt they obtained the charts and directories which they used in their voyages.

The Greek historian Herodotus contributes not a little to the improvement of geography, although he knew as yet but little of the western part of the Mediterranean. But Scillax, the Athenian traveller, had already gone beyond the Strait of Gibraltar, and published his discoveries in his celebrated periplus.

The great Greek philosopher appeared later, and was the first who spoke of the sphericity or globular form of the world, but limiting it to the Indus in the east, and to Tartesus in the west; and yet the great progress which geography then made was due to Alexander the Great, the Macedonian conqueror. In his several war expeditions he took with him the best geographers and astronomers to be found with the view of describing and laying down in the map the countries which he conquered. This great warrior, who commemorated the conquest of Egypt, planted the great city which bears his name. This rival of Tiro, of Thebes and Memphis, the famous Alexander in that celebrated city, the scattered works of Tiro, Babylon, and other conquered cities, and laid the foundation of that great library which his illustrious descendants, the Ptolemys, carried to so magnificent an extent. He indeed was the great patron of the arts and sciences, encouraging navigation and commerce in every way possible. By such means he concentrated in this his opulent city, not only the riches of the east, but the whole extent of human knowledge, condensing it in his famous school to which the sages of Greece resorted, in order to improve their learning.

From the constellation of philosophers that issued from that focus of knowledge came Eratosthenes the librarian, a distinguished man of his time, whose geographical works were held in estimation for many centuries. Hipparchus came from the same school, to whom is attributed the invention of the plain chart, improved afterwards by the Arabs.

Strabo, the great historian, soon after appeared, who has left us the most complete work on geography in his day, in which the Mediteranean shores are carefully delineated: and he also gives us accounts of the Fortunate islands, those Atlantic shores previously wrapped up in fabulous story, such as the gardens of the Hesperides and those Hyperborean shores which the Romans visited in the latter days of their republic.

But at length that sad period arrived when southern Europe was visited by the barbarians of the north, when the Roman empire fell, and that disastrous revolution was produced by a people who cared only to find a more temperate and productive country than their own frozen and barren regions. This ordeal from which only the east was free occasioned a long suspension of progress in those intellectual pursuits followed by the Latins, a suspension succeeded unhappily by another no less barbarous invasion by the enemies of learning, the Saracen outbreak from their home, the sallying forth of these people from their Arabian deserts. These tribes were instigated by Islam,

who would uphold the truth of his doctrine by carrying on war and plunder against those who were averse to it, and thus commenced the destruction of the eastern empire, the burning of libraries, the sacking of towns and cities, concluded by their occupation of the whole of northern Africa, and also a large portion of southern Europe. Thus it was that the whole of the geography of the ancients remained buried under the fragments of the Roman Empire, where ignorance followed the banishment of science until the expeditions to the Holy Land, and the exploits of the Crusaders in endeavouring to recover possession of sacred places, became the commencement of a new era in geography based on the remains which might be saved from the general wreck of literature and science.

*(To be continued.)*

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## A Trip to the Mining Regions of the North-west.

Monday, July 13th, 1868.

*Scenery—Hole in the Wall—The Devil's Gap.*—The weather continues delightful, although intensely hot, even on the water; and we are told that overcoats and heavy under clothing will be in requisition on reaching Lake Superior. At four o'clock this morning, the boat touched at the Bruce Mines, the town of which name is situated at the head of the Georgian Bay, and where American vessels, by the southern route, branch off into Lake Huron. The boat reached the wharf at four a.m., just as Old Sol was emerging above the eastern horizon. The steamer remained only a sufficient time to allow of the loading and unloading of freight, it being the intention to permit the excursionists an opportunity of visiting the mines on their return. Even at this early hour, a party was evidently engaged celebrating the anniversary of the 12th, as might be heard from the dull sounds of a brass drum, and the shrill tone of a fife, in the distance, playing out a series of party airs. We are now two hundred and sixty miles on our journey. As we proceed, we reach a very pretty spot, called St. Joseph Island, or Hilton Village, a place of some half-dozen houses, six miles from the Bruce Mines, and where we again take in wood. Here several boats were lowered from the ship and a number of the party proceeded a short distance to enjoy a bathe. Leaving this point, we pass through some of the finest scenery perhaps on the American continent. The route reminds one almost of journeying through the Thousand Islands, on the St. Lawrence, but on a much larger and grander scale. No sooner is one lovely spot passed than another meets the eye, and all are lost in admiration of the beauties of the scene. The route is one of unsurpassed magnificence as we pass rock bound channels, innumerable islands, Indian camps, etc., all within a stone's throw of the boat. In one place we come upon a rugged spot, called the Devil's Gap, a channel just sufficiently wide enough to permit the steamer to pass through, followed by the Hole in the Wall, a channel

of similar proportions. Twenty miles above the Bruce Mines we come in sight of the American shore, on the borders of the State of Michigan, and ten miles further up, enter Lake George, a sheet of water almost circular, ten miles in length by ten broad. The route through this lake is dangerous, owing to shallow water, and at present the channel is being dredged by the American government; a series of buoys mark the route on both sides. It has been dredged to a depth of eleven feet. The only portion that required deepening was that of about two miles, the remainder being of sufficient depth for ordinary purposes of navigation. This forms the boundary line between Canada and the United States. Lake George is twelve miles from Sault Ste Marie; the channel is being still further widened from fifty to one hundred feet, to permit vessels to pass each other.

*St. Mary's River.*—After leaving the lake, we enter St. Mary's River, a stream lined on each side, some distance from the shore, by high rocky ridges; about a mile from its mouth, the boat stopped at another wooding station, called Garden River, an Indian reserve. At this place, we found a neat little Roman Catholic Chapel, and an Episcopal Church. It is a straggling place, and contains but few houses. A post office is found here, the post-master being Rev. Mr. Chance, of the Episcopal Church; as that gentleman is now on a visit to England, on a three months' leave of absence, his good lady performs the duties of the office until his return. The inhabitants are mainly French and half-breeds, with a few white people; the population is stated to be between two and three hundred. A journey of a few miles further up the river brings us to Sault Ste Marie.

*Sault Ste Marie.*—The Sault at one time, at least the town on the American side, was a place of considerable importance. Before the locks were constructed, and while a land connection, by carriage of freight from above and below the rapids was necessary, business was carried on to a very large extent, and the town became rapidly settled; but, within the past ten years, its population has decreased, and it now appears to have seen its best days, having no fertile country in its rear to sustain it. Its inhabitants number about 1,200, but the town itself is remarkable for its dullness, and the very highest rate is charged for every commodity. It boasts of being a garrison town, and at present a company of United States infantry, to the number of one hundred and twenty, are stationed at a wooden fort close by, named Fort Drake. The locks at the Sault are what might be termed a great triumph of engineering skill, and cost in their construction a sum of 7,000,000 dollars; they are three in number, with a waste lock, and are large and massive affairs, capable of permitting two of the largest vessels afloat on the lakes to pass through at once. The elevation from river to river is about fifty feet, and the distance three-quarters of a mile. The locks and canal were built thirteen years ago. The rapids at the Sault are about half a mile broad, and dangerous to navigate. Some half dozen of the more venturesome of our party, however, with the aid of a canoe and a couple of Indians, took a trip down, but they were careful to keep close to shore, and out

of the most dangerous part of the current. Not long since, a number of persons were engaged in a freak of this kind, and venturing out too near the centre of the rapid current, the frail canoe was upset, and out of seven in the craft, only one remained to tell of his hair-breadth escape; the rest were drowned. The town on the Canadian side is of smaller dimensions than that on the American shore; it is also named Sault Ste Marie, is the county town of the District of Algoma, and contains about five hundred inhabitants. It has a stone court-house, a two-storey building, in which are the sheriff's offices, and that official's private residence up stairs. The court-house is of small dimensions, about forty feet in length by twenty broad, is furnished with seats for visitors, and, as near as possible, resembles some city police office. The town contains half a dozen stores, and many scattered private dwellings. It has, however, a fine back country, and the crops were everywhere luxuriant. Judge Prince's residence is a handsome stone building, situated about a mile down the river. Mr. J. Simpson, member for Algoma, also resides here; he lives in a splendid stone building, in the midst of a fine farm, a quarter of a mile from the wharf. The heat, as we lay at this port, was most oppressive, the thermometer marking 104° in the shade, but we were destined to emerge into a much cooler atmosphere before many hours. The steamer left here at four p.m., and after running through the locks, reached the Upper St. Mary's River, distant three hundred miles from Collingwood. A few miles upward brought us to Pointe aux Pax, a wooding station and trading post. This place is almost unworthy of mention, the only sights visible being a couple of houses and a cock-fight, which latter had just terminated as we arrived.

*On Lake Superior.*—After a run of some fifteen miles up the river, we entered Lake Superior. Our predictions with regard to the change in temperature were shortly verified, and from a sweltering heat of 104°, we were ushered into a much cooler clime, so much so, that shawls and overcoats were speedily sought for, as a protection to the body. On examining the thermometer next day, we found that the mercury had descended as low as 50°. In fact, the cold was such, that, unless a buffalo skin or heavy shawl were added to the ordinary supply of bed clothes provided, the greatest difficulty was experienced in keeping comfortably warm. The change in temperature is said to be owing to the depth of Lake Superior, which in some parts is seven hundred feet deep, the cold arising from which, acting upon the heat from above, produces not only a dense fog, but likewise a chilling atmosphere. We suppose it was felt with greater severity, in consequence of the hot climate we had passed through the previous day. During the evening a dense fog prevailed, which enveloped us all night; our progress was much retarded thereby, so impossible was it to see any distance ahead.

*In a fog.*—Tuesday, July 14th, 1868.—On awaking this morning, we were surprised to find that but little headway had been made during the night, owing to the prevalence of the fog, and for several hours the vessel had to remain at anchor, unable to proceed.

Michicopoten Bay, our next landing place, it was expected would have been reached this morning at seven o'clock, when it was intended we should have spent some three or four hours in fishing. The fog, however, became master of the situation, and we were disappointed. About noon, the fog lifted, and the bay appeared in sight, but owing to the delay, the greater number of the party were prevented from going ashore; those who did so, had to proceed in boats for about a mile, there being no wharf at this point. On the arrival of the steamer in the bay, three guns were fired by the officials of the Hudson's Bay trading post, and the *Algoma* again came to anchor; here we remained about an hour. The river at this spot is navigable to the first falls only, a distance of fifteen miles. The steamer was visited by one of the boats of the company, followed by a couple of large batteaux, manned by Indians, which conveyed Mr. Finlayson, one of the Indian agents, his two daughters, and a quantity of stores on shore. The anchor was again hoisted, and we continued our journey, but had not proceeded far when the fog, as thick as ever, again surrounded us. Shortly afterwards it became partially clear, and we were not long in making Michicopoten Island, a distance of one hundred and eighty miles from the Sault.

*Michicopoten Island.*—This is a very pretty spot, and as we entered the magnificent land-locked bay, capacious enough to hold the entire British fleet with safety, the beauties of the place were revealed. Its surroundings comprise a number of diminutive isles, on some of which valuable specimens of agate are found. Several of the party went on shore in boats, to view the scenery, and visit a newly made bride, who had just three weeks before been joined in matrimony to the light-house keeper, and who, with her husband and a couple of other families, were the sole occupants of this lonely spot. Here wood was again taken in; this article and huge mosquitoes, whose sting proved of the most poisonous character, appeared to be the principal products of the island. Michicopoten Island is about nineteen miles in length, it is slightly mountainous, with a bold shore, and its highest point is three hundred feet above the level of the lake; it is thickly wooded, with beech and birch, to the water's edge. Two copper mines were opened on the island some years ago, but failing to produce satisfactory results, they were soon after abandoned. Among the surrounding hills are to be found several miniature lakes, in which splendid fishing is obtained. The northern lights, or aurora borealis, were here displayed in all their beauty, such as can only be witnessed in a northern latitude. After taking in some twenty-five cords of wood, we departed at half-past eleven p.m., the sky, from the luminous effects imparted, rendering it almost as clear as noon-day. I forgot to state that the first number of the daily newspaper, the *Canadian Press*, printed on board, was issued for the first time yesterday, under the management of a committee, its principal news being gleaned from, and related to, the points of interest along the route. The sheet was circulated daily among those on board, and distributed at the different landing places. Reunions were held nightly in the upper cabin, and contributed much

to the enjoyment of all on board; the musical talent was such as could rarely be met with. The entertainments consisted of vocal and instrumental pieces, on the piano and violin, readings, recitations, etc. These were continued every night during the trip, with one exception, when the party had been enjoying themselves on shore during the day, and feeling too weary, abandoned the reunion for the night.

*Island of St. Ignace.*—Wednesday, July 15th, 1868.—A beautiful morning dawned upon us, although we were informed that, for two weeks previous the lake had not been clear of fog. The atmosphere was cool, and heavy clothing had again to be resorted to. At ten o'clock it became much warmer, as we approached land, and in half an hour we entered another magnificent bay, the Island of St. Ignace. As we pass into the bay, some wild scenery is observed on the right, and close by, a lighthouse. This spot is marked by an incident of a sad and melancholy nature; it is the place where the unfortunate Perry started from, on his way to Fort William, a distance of sixty miles, where, it will be remembered, he met his fate last winter, by being frozen to death, when within a few miles of the Fort. Deceased was lighthouse keeper at this point, and sacrificed his life in a too strict performance of his duty, being the last to remain at his post, after all others had left the island. This is a delightful spot, and in many places the island is covered with a soft and velvety green carpet of moss, and a variety of pretty wild flowers. It is rocky, composed of granite, and thickly wooded with stunted pines and poplar. It is surrounded by numerous small islands, on some of which many fine specimens of agate are found. The whole of the party enjoyed themselves to the fullest extent; some went fishing, but the greater number took boats, and visited an adjacent island, from which a collection of valuable stones, principally agates, were brought.

Some very fine speckled trout were caught in adjoining creeks, and those who were bent on that particular enjoyment were well rewarded. The specimens hooked ranged in weight from a couple of ounces to one of four and another of *five pounds;* these monsters were caught by Mr. Young, M.P., of Galt, and Capt. Perry, who showed themselves adepts in the piscatory art. The person at present in charge of the lighthouse here, since the death of Mr. Perry, is a jolly old Yorkshireman, whose name I did not learn. He has been about thirteen years in the neighbourhood, and is married to a squaw. As nothing but the Indian language is spoken here, the old man and a couple of his sons being the only white inhabitants of the islands, and neither being versed in that dialect, the old lady acts as interpreter. A considerable trade in fish is done at this place, the business being engaged in principally by Indians. This is also a wooding station. Before leaving, the old man led us to believe that he was extremely hard up for reading matter, and had no communication with the outer world through the press for a couple of weeks before, although he had made arrangements to receive a Toronto weekly, which had failed to come to hand; at the time, he was engaged in the perusal of a book that he had read and re-read some half-dozen times before. Your correspon-

dent pitied the old man's lonely situation, and visiting the steamer, succeeded in securing several old newspapers belonging to those on board, which were handed to him, and received with thankfulness. After a stay at this lovely island for about nine hours, the steamer again got under weigh, and we were once more on our journey to Fort William. All harbours yet visited have been admirably selected; they are perfectly land-locked, and offer the greatest security to vessels in a storm. The bill of fare for the reunion this evening was well chosen; it comprised a couple of instrumental pieces, songs and choruses, readings, recitations, and a stump speech. The concert over a trip or two on the "light fantastic" concludes the evening's proceedings, which latter amusement in many instances was indulged in to an early hour the following morning.

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## Philip Island Anchorage.

To those who are not well acquainted with Philip Island when approaching the anchorage off Sydney at Norfolk Island, the following extract will be useful. It appears to us however to refer rather to Nepean Island, but whichever it may be the hint will not fail to be useful.

At sunrise on the 2nd of May, we sighted Philip Island and flew down to it at a great rate, before the boisterous breeze, under double reefed canvas. Philip Island is a curious red rock, situated close to Norfolk Island, and opposite its principal harbour, which has been named after Sydney, the capital of New South Wales.

And now all were looking anxiously at the flag-staff in Sydney Harbour, to see whether the flag of danger, or the union jack, was hoisted by the inhabitants, for this place is so exposed to the wind, that it is only in very moderate weather that it affords a safe anchorage.

Yes, there it was, plain enough; the captain had caught sight of the Union Jack with his glass, and congratulating himself that all was right, he boldly run on for the anchorage, as marked in the chart, intending to provide himself with additional firewood, and to await more moderate weather.

Two hands went for'ard to be ready to let go the anchor stop, when the proper moment for doing so should have arrived. Harry stood by the lead line and Charlie steered. It was a moment of considerable excitement for them all, as the little craft rose and fell on the seas that, in the now shoaling water, stood mountains high, and neared the reefs which apparently extended round the open bay, into which they had sailed, with the wind right aft.

In vain the captain examined this barrier of water, dashed high in the air, by unseen rocks, into cataracts of foam, hoping to find some

opening through which they might pass into the smooth water beyond: but no, nothing of the sort, and the bay itself was far too unprotected for any one to dream for a moment of anchoring in it. Philip Island, which is nothing but a bare rock, was too small and too distant to afford them the shelter of a lee shore. In fact it soon became evident that Sydney Harbour, Norfolk Island, was, in the usual acceptation of the word, no harbour at all, that the captain suddenly exclaimed,— "If we're not already jammed, we must get out of this, at all risks or we're lost. Give ship there. Down with the helm, hard to port. Haul in the main sheet."

The schooner answered her helm only too easily, for, as her head came round, a sea caught her in a buffet on the port quarter which set her spinning, long before the main sheet could be gathered in, and consequently the boom of the mainsail (which was taken aback), swung across the taffrail with a heavy surge, nearly knocking Charlie overboard, and being brought up, on the other side, by the main sheet suddenly, and with a violent jerk, it broke loose from the mast altogether and fell quivering on the deck like a live thing.

"Jaws of the boom are gone, handspikes there, Tony. Some spare rope, some one. Look alive now."

The handspikes were brought in an instant, some on either side of the boom projecting a little from its end, so as to form jaws were firmly lashed. It required the united strength of the whole crew to ship it on the shoulders against the mast. The excitement of emergency gives strength. In another minute they would have been too late. It would have been utterly impossible for them to have got out of the reef-surrounded bay, by which they were nearly shut in. As it was they had to keep her feathers shaking in the wind, and it was rather owing to an eddy of the current, which carried them round, than to the sailing qualities of the craft, that she escaped utter destruction from the reefs on her lee bow.

The crew on looking back, like Lot's wife, saw that the flag staff had apparently, at length awoke to a sense of their danger, and had lowered its flag half-mast. This signal, if it did not exactly turn them into pillars of salt produced in them that sorry zest or gratification, which is said to be the salt of life; for it was clear that the islanders intended to signify by that demonstration that they had narrowly escaped "instant death."

Tony being well assured of this fact, commenced immediate preparations for dinner, while the captain steered the vessel round to the lee side of the island.

At a little distance, Norfolk island looks like a huge mountain of rock, driven up from the very depths of the sea, for its sides are so perpendicular (except indeed at Sydney Harbour and Cascade Bay, where they are a little shelving), that one might call it table-land, were it not that in lieu of being flat at the top it rises up into many rounded hills, flowing one over the other in picturesque irregularity. On coming nearer it is found to be clothed with the magnificent Araucaria Excelso, clean, tall pine trees, with branches feathering

down to the grassy slopes beneath, upon which a good sprinkling of cattle may be seen grazing tranquilly. From the slightly stiff symmetry of the Norfolk pine, the whole bore a faint resemblance to a piece of English park scenery, natural, but well taken care of.

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## SPAIN AND THE SUEZ CANAL.

IT was not possible for the Spanish Government to remain passive, nor to refrain from taking an active part in the great event which took place in the month of November last (1869), that had for its object a complete revolution in the commerce of the world. The opening of the Suez Canal, by which the waters of the Mediterranean might communicate with those of the Red Sea, rendered complete the navigation of the Isthmus of Suez. It was previously arranged that the frigate *Berenguela* should proceed to the Philippine Islands, and it was decided that she should pass through the Canal, not only that Spain should have the honour of being one of the first nations that should avail herself of this new route, but that one of her largest frigates should be the first from it to circumnavigate the globe. She would thus render her tribute of admiration to the hero of this enterprise, who overcoming every difficulty had done so much for mankind; the results of whose work cannot now be calculated, and with the object besides that Spain would be worthily represented in the inauguration of the Canal among the sovereignties, and the various representations of the European powers who would be present on the occasion.

With this view the frigate was fitted out in the Port of Carthagena, when also she received on board the Spanish legation for Japan, composed of the Consul-General of Spain in that country, Don Tiburico Rodriguez y Munoz, and his secretary Don Emilio Ojida, and translator Don Nicola Maria Rivero y Custodio, Don Juan Ortiz, Vice-Consul of Spain at Amoy, and in addition to the above legation the new Consul-General in Alexandria Don Isidora Milla, sailed from the said Port of Carthagena for Suez on the 27th of October, 1869, intending to stop at Malta and at the Port of Alexandria, from whence she would proceed to Port Said at the Mediterranean end of the Canal.

After a passage in which she encountered nothing but easterly winds, we entered the Port of Valetta on the 1st of November. Here after replacing the fuel and water expended on the voyage, and having obtained some other supplies we continued our route for Alexandria on the morning of the 4th, not without being compelled to wait twenty-four hours at Malta beyond what was necessary for our supplies, and at the same time, with the hope that the breeze would leave the N.E. where it had settled on our arrival. But no gale hurts a vessel once inside so excellent a port. Indeed it forms two which are separated by a peninsula on which is situated the town of La Valetta. That on the right called the Grand Port is the veritable commercial

port, and where all vessels of war are refitted and merchant vessels having a free pratique; that on the left is less frequented, being used only by vessels which have to pass a quarantine, and the steamers of the Peninsular and Oriental Company. Here are placed their deposits of coal in spacious, convenient warehouses, constructed expressly with this view.

The facilities for coaling leave nothing to be desired; for if the Company do not use them, the English Government have other stores in the arsenal, and besides there are many who traffic in this article, and vessels are always discharging it, so that it is abundantly available. This service is so well provided in particular that in the working hours of the day they can embark two hundred tons, without availing themselves of the advantage of stipulating that the coal shall be embarked from the shore, the cost of which would be included. To do this with the rapidity above mentioned notice by telegraph should be given to the agent to be employed in it, announcing nearly the day of the vessel's arrival, with the view that the vessels may be ready. We have seen a steamer of 2,000 tons come in which before being secured had along side of her eight barges full.

The price is moderate, about twenty-eight shillings the ton of superior Cardiff coal put on board. As to the water, the Admiral of the port sends gratis a large boat to foreign vessels of war, and if the use of her is not desired there are various means of obtaining it at a moderate cost. As many wants as a man-of-war has may be supplied at Malta, it being only necessary to guard against the immoderate spirit of gain attributed to the Maltese who deal in stock and vegetables, a spirit which they display with the utmost activity against those who do not know the prices of the country. In fact, when buying anything in the town one should always employ an agent, without whose assistance a person will be sure to pay three times the value of anything they may purchase.

The Grand Port has two arms; in one of these is the Government arsenal with its handsome pier of 320 feet long, with all its factories, offices, etc., for the service of the English squadron when here. As we have observed this arsenal is under the orders of a Rear-Admiral who resides here, and attends immediately to all the requirements of English ships as well as foreign ships of war. As we had not found in the city certain stores which we required, they were immediately conceded to us from the arsenal with the utmost consideration as soon as our wants were made known. The whole port is studded with buoys at certain distances for the use of the ships of war, to one of which the *Berenguela* was secured.

The weather being fine we left Malta at eight in the morning of November the 4th, shaping our course for Alexandria with a good western breeze, which in four days enabled us to make the light of the port. We were however compelled to anchor in the roads near an Italian frigate, after waiting without effect for a long time. The landfall of Alexandria, were it not for the said tower of 180 feet high rendering it visible at twenty miles distance, would be frequently

impracticable and always most difficult on account of the lowness of its shore, the windmills being first visible after the lighthouse, before any part of the coast. The entrance of the port is also very complicated, for from the lighthouse, and nearly E.S.E. and W.N.W. a reef of rocks obstructs it, leaving channels which can only be passed by ships of a certain draught, in that called the pass of the Marabut. These passes are perfectly buoyed with certain colours, which in combination with marks on the shore lead in with twenty-five feet water. This can only be done with certain wind and sea, for at other times the whole forms a line of breakers in which on account of the perpetual current to the eastward along the low Egyptian shore, makes the riding very bad outside. But the marks being once known there is no difficulty in using them, but never without a pilot, for the set of the current affects the channels. The other channels or passes called central, and Corvette's Channel left in the reefs are only practicable for small vessels. Our Vice-Consul at Alexandria observed our arrival, and suspecting that our Ambassador would come on board, the Marquis de los Ulagares, he arrived at four in the afternoon from a steamer with a pilot, and we prepared immediately for getting under way.

Great was the number of vessels of different European nations that had met for this inauguration of the Canal producing a very unusual bustle in the port. The English squadron under Vice-Admiral Sir Alexander Milne, composed of five armoured vessels and four smaller ones, which had arrived from Athens were lying in the roads. Within the port was a French frigate with a Rear-Admiral's flag and various smaller craft, besides another sailing frigate which lay perpetually at Alexandria, serving as an hospital ship for the station. There was also the Italian squadron composed of an armour-plated frigate in the road and some smaller ones. Many Egyptian vessels, among which was the Viceroy's yacht and that of the Empress of the French, which was to receive her Majesty at Alexandria and convey her to Port Said. A Swedish corvette, another Dutch, another Norwegian, and some others. The prodigious display which the cultivation of cotton in Egypt has taken since the crisis of the United States, and the great exportation of grain, contributed to the maritime movement of the port, notwithstanding the circumstances of the time contributed much to all this.

Steamers of all countries were perpetually entering and leaving the port, and sailing vessels of large tonnage with rich cargoes, besides an extensive amount of piloting craft for the Greek Archipelago and Syria. Besides Alexandria being the central deposit of vessels of the Peninsular and Oriental Company and the French Imperial Company who possess large establishments there; and as the place of transit for vessels coming from and going to India, all this keeps Alexandria continually moving. And to all this would have to be added the intercourse occasioned by the opening of the Suez Canal.

On the 13th at one o'clock in the afternoon after the business to be done at Alexandria was settled, and it being a favourable time for arriving at Port Said, where we should arrive on the 17th, we left

Alexandria for that place. And the Swedish and Norwegian corvettes *Wanaris* and *Nordsjernan* followed us.

Early on the 14th we were in sight of the light tower of Port Said, and made out distinctly the vessels in the roads and the port. Those in the roads were the Austrian armour plated frigates, one of them with a Rear-Admiral's flag. The wind was N.W. which had continued from the previous day, and the sea which got up from the northward gave us to understand pretty soon that not only it would not be possible to enter the port, but not even to remain at anchor in the roads. Nevertheless we anchored near the said frigate in seven fathoms as well as the corvettes which came with us. From the constant current setting eastward, we had it across us which kept us perpetually rolling, so that we could not salute the Austrian Rear-Admiral without a considerable delay on both sides. The *Berenguela*, guided by the indications of her barometer which foretold that the weather would soon clear up, remained at anchor in the roads in spite of the trouble it occasioned us; and before evening we received notice from Mr. Lesseps by a steamer which left the port with a pilot, telling us that it would not be possible to go in on account of the heavy sea in the outer port, and that at daylight on the following morning we might try it, if the wind as it seemed inclined to do, would go down.

The night was passed, to say the best for it, not comfortably. But it was some consolation to us to see the beautiful light of Port Said, with intermittent flashes every three seconds, which scarcely lasted to our view, at less than a mile that we were from it. This is said to be the first of this kind of light projected for this coast, and which is likely to be followed, on which we may say something hereafter on account of its importance.

Here we are inside of Port Said. At sunrise the pilot came out with his steamer, and without delay told us to get under way for the outer port which we should cross entering one of the lateral enlargements, where we made fast; that one next to the opening of the Canal with an anchor and two stern fasts to the shore.

The out port is formed by two extensive breakwaters with broken rock; the western one has a considerable extent, of 2,500 metres, and the eastern which is prolonged making with it an angle of about 30°, has a length of about 1800 metres. The western breakwater reaches out into 8.50 metres of depth and the eastern to 7.50, so that they would form an isosceles triangle if the eastern breakwater were prolonged to meet the western one. These works still require much finishing; the blocks of stone are very irregular, and hang over the water some one or two metres; in some places the level is too low, and in others the sea covers it entirely, and this latter feature is most to be noted in the eastern breakwater.

Nevertheless, in both of these structures between the sinuosities which are evident in the blocks of stone, there is a very narrow path which leads to its extreme end where the blocks are higher, forming a kind of promontory in which the lights of the port are placed; one red at the extreme end of the western breakwater, and the other

green at the end of the eastern; thus completely marking at night the entrance of the outer port. The whole superfices of this outer port is 171,875 hectares. At the termination of the western breakwater is the magnificent lantern giving the light we have mentioned. The Canal follows immediately, which forms the great entrance or interior port, to the sides of which (and consequently artificial) vessels are secured, and which is called the port of Ismail, having three other recesses on its western side, called darsena Cherif, darsena del arsenal, and darsena del comercio, which are serviceable to the port as well as its numerous offices and establishments.

In the two points of the outer port which is at the entrance of the short space that leads to the great darsena of Ismail, which is the real port, they have established two other lights in order to mark the entrance. As soon as a vessel is inside the port, and in the depths of the great darsena of Ismail, that is in its southern part, is the mouth of the new maritime canal which enters the lake Menzaleh, a mouth likewise distinguished by two white fixed lights on two points, formed on two towers of wood, which very shortly will be of the same consistency as that forming the tower of the great electrical lantern.

The western breakwater with its large darsena of Ismail, the principal one of the maritime canal, will form a direct line nearly N.E. and S.W. without interruption. The total superficies of the port, comprehending also the lateral darsenas, is 52,825 hectares; that of the canal is 4,000; the grand darsena of Ismail is 37,400, the darsena cherif 4,800, that of the arsenal 2,625, and that of the darsena del comerce 4,000. The total length of the walls of the port is four kils. and 520 metres. About 200 metres of breadth will be formed by the rocks of the shore on the eastern side of the port.

All the margins of the grand darsena have been formed under the same system of works as the breakwaters, with only this difference, that these works have been formed with more care, and what is demanded by the exigencies of a port. Hence it is, that first pilotage is established in the direction of the lines of the port, the heads of which at present serve as direction; and afterwards as the corresponding work has been submerged, the blocks (leaving an offshore of 45° of slant) to which consequently vessels do not fasten until the system of wooden walls is completed, or even initiated in some parts of the port; in this case the commercial operations may be verified with the greatest ease.

The rocks which form the port rise about one or two metres above the water, and much less than this even in certain places. The said blocks are also covered with a certain covering of fine sand in certain places, the produce of the drags in that locality, which constitutes a uniform coating, but are extremely incommodious in consequence of the sand.

The breadth of the western rocks which arise from the lesser darsenas, and which separates the port from the waters of the lake Menzaleh, varies according to the course established for their works, or other necessities which have been demanded afterwards, these not

exceeding from 100 to 200 metres from the entrance of the maritime canal as far as the darsena del arsenal.

Continuing from this point until near the great and most western lighthouse, in the first space comprehended between the shore of the Mediterranean and lake Menzaleh is found the new town of Port Said; of which we will give a slight account, and for which we must refer to the shores of the canal and darsenas, commencing with that to the eastward.

The head which the canal forms and nearly embraces all of it, is itself constructed of those celebrated colossal blocks which follow each other, even in the spacious places chosen for the mixture of the amalgam. In following the shore (always the eastern at present) comprehended between the commencement of the darsena of Ismail and the mouth of the maritime canal there are various buildings, such as those of transit and others which are adapted to various purposes. Here are also the deposits of fuel. Passing to the western shore, and commencing with the great lights, the darsena del comercio is entered, a quadrangle capable of receiving and sheltering vessels of all sizes, surrounded by storehouses and various offices. In the darsena of the arsenal is found mixed up with large and small drags, locomotives, apparatus of suspension and others which have been used in these works, and which are classified for further use; and lastly, in the darsena cherif are the various articles which the English company, as well as the French company have established at Port Said for use on future occasions.

Such is generally the condition of this beautiful artificial harbour, in which is not found less than eight metres of water, one that undoubtedly is an honour to the age, and from whence has arisen, as if by enchantment in the short space of two years, a permanent town of more than 10,000 souls.

The transit of vessels through this port during these last months has been 120 vessels each month, and among them are from twenty to thirty large steamers. The monthly account of travellers under general circumstances has been 300, a number greater than that of the rest of the Levant, excepting Constantinople and Alexandria.

We are indebted to Mr. Olivier Ritt, agent of the company, for the account of the transit (or maritime movement) through Port Said, from the commencement of the works of the canal to the end of June, 1869. We will add to the indications found in it, that the vessels which have visited the road during the first year, were sailing vessels of small tonnage, while lately Port Said has received in its darsenas large vessels of sail and steam. In the year 1868, the proportion of steam vessels has been one for three; and their tonnage more than fifty per cent. On the western wall, or following lake Menzaleh, are the two conduits which bring drinkable water from Ismalia.

The opening of the canal of Suez, officially announced for the 17th November, 1869, could not be received with indifference by European nations interested in its completion; nor would it be so by those to whom a tribute is paid for so gigantic a production of industry.

Hence it is that sovereigns, princes, ambassadors, and representatives of all countries made their appearance at Port Said on the day fixed for its ceremonies. The population to witness it was in truth a moving multitude, in which were mingled together all the tribes of the country, from all the Eastern provinces, and a brilliant assemblage of Europeans, Asiatics, Chinese, and Americans, north and south. Besides forty-five vessels of war of all nations which had assembled to solemnize the act, there were 120 merchant vessels of sail and steam, the last class being in the larger proportion; they peopled the port with passengers, who, not finding sufficient accommodation on shore, preferred remaining in their vessels, thus to enjoy the continuous and varied spectacle presented them by the great darsena of Ismail.

The saluting with cannon the respective courtesies was not suspended for a single moment during the day, nor the visits among each other of the several captains of the ships of war. On the 15th, only the *Berenguela* had fired 170 guns by way of saluting. The dressing of the ships with flags of all nations in honour of their Imperial Majesties the Empress of the French, the Emperor of Austria, the Vice-Roy of Egypt, or the hereditary princes of Prussia and Holland was incessant, all contributing to give to the port on the 15th and 16th a special character of feasting and joy. Nor have the illuminations at night been less marked, for besides reaching the town of Port Said, especially in those parts abreast of the darsenas, with coloured lamps of capricious and beautiful figures on the shore opposite, some beautiful fireworks were let off, which were no less remarkable for their beauty than for their profusion. All the ships of war and merchant vessels were splendidly illuminated, some of them with the greatest taste and elegance. A surprising, and worthy of a hundred was the night in which we met: the night of the 15th, His Highness the Vice-Roy had a choice reception on board of his yacht, one which was truly oriental.

But of the whole feast, the most imposing, without any doubt, was the song of international, graceful action which took place on the following day on shore, presided over by S.S.M.M. the Empress of the French, and the Emperor of Austria. A temple had been erected with exquisite taste in the place called Lesseps Square, and was covered by a tablado the whole way leading to it. The square was formed by handsome Egyptian and triumphal arches at every step.

At three in the afternoon the Empress disembarked, accompanied by the Emperor of Austria, in the midst of the most deafening explosions of artillery, shouts of seamen from the manned yards, and the military music of the different ships. This was followed by a brilliant retinue composed of the respective retinues of all the princes, ambassadors, admirals, officers in command, the representatives of all known religions, as many as were known to be present, and with official standing. M. Lesseps had the honour of receiving them in his tent. Monsieur Bauer, the confessor of the Empress, gave a short and neat discourse alluding to the occasion, which was followed by similar orations from Mussulmen, Catholics, Greeks, the Ashaman-

drites, the coptic bishops, Armenians, etc., and the Monks of Libanus, mixing with them the humble supplication of Sisters of Charity, who were not less grateful from their position.

This ceremony being concluded, the sovereigns returned to their vessels with the same ceremony as on their landing, and he who had the good fortune to witness this ceremony, will not easily forget the splendour and magnificence of the scene. The commandant and officers of the *Berenguela* had been received by the French Empress, the Emperor of Austria, and the Vice-Roy of Egypt, and having gone through all the etiquette on the occasion, the commander of the *Berenguela* gave a banquet on the occasion to sixteen officers of the Spanish commission at Alexandria.

With the recollection of these two days, the 15th and 16th of November, we must observe that the *Berenguela* formed no part of the particular vessels which were to penetrate this canal. All of them being of an inferior size to her, M. Lesseps and the company had fears that some grounding would take place in the canal, or other incidents might happen to cloud the festivities, or bring some discredit on the proceedings of the company, although ample assurance had been given by M. Lesseps that once free from obstacles, we should pass through very easily: we had therefore only to persevere, having no obstacles yet to be overcome.

The creation of Port Said is an undertaking enough for any man. Ten thousand persons at any other time exist in this inhospitable desert, and it was now required to support a much larger population. Vessels of all nations find room in Port Said, keeping up a nearly constant communication between Europe and the coast of Asia minor.

There was much difficulty to be overcome in the management of Port Said, but this was not all. Besides the trouble of the sand forming the Mediterranean shore, there was a lake or rather a huge stagnant pool of water of forty-five kils. across, by 200 metres in circumference, the mean level of which was equal to the level of the Mediterranean. This lake, formed by the two Pelusian and Tamitico branches, had to be traversed by the canal.

There were fears about the impossibility of this being done on account of having to drag across this lake, in establishing the banks of the canal. The first soundings, however, gave two metres of depth, when clay and sand were found, on which the action of the drags was very efficacious.

The canal was made, and the mud taken from it was transferred to the tongue of land where it was intended to begin the construction of Port Said. Some hundreds of cubic metres of clay greatly increased the breadth of this ground, and gave size to the town which began to display itself in Port Said.

On the other hand, the produce of the dredge was placed to the left of the canal to form the sides. The immediate result was the drying of a part of lake Menzaleh, isolated already by this branch of the Nile which fed it, admitting the formation of excellent ground unproductive from time immemorial.

In this strip of ground was placed the tubing for leading off the fresh water that was carried by a powerful machine from Ismail to Port Said, and without which the last of the places would verily have been without fresh water.

This canal was opened then across Menzaleh, the bottom of which is sufficiently tenacious to admit of it, and that the produce of the dredge met with no important resistance. At the south end of this lake is *Kantara*, a station in the route from Syria to Egypt, and we are then in the Bible country. At a few kilometres distance direct is *Toano*, in the waters of which, according to tradition, Moses was exposed, and it is easy to conceive that the land of Goshen, inhabited for four centuries by the Israelites, is near to this part of the Nile.

This route followed, and indeed worn down by so many steps, conquerors, shepherds, merchants, etc., has become during 6000 years the ordinary line of communication between Africa and Asia. The continual object of history, of the law, the track of immense armies of the Ramises, by the Asiatic invasion, Cambyses, Alexander, and later still, by Mahomet, with his victorious armies; and lastly, by Napoleon Buonaparte. It has now seen another legion of workers of peace, who have changed this ancient and truly venerable soil, and if they do employ iron, it is not directed against men, but against the soil itself; which it is desired to overcome, in order to fertilize it, and to obtain from it a due transit, life and riches.

At the extremity of lake Menzaleh are some sandy downs, separating it from lake Ballah, the level of its bottom being nearly identical with it.

From lake Ballah a series of small hills follow, which reach as far as lake Timsah, which occupies nearly the middle of the isthmus; its northern part being some sixty-five kils. from Port Said. The mean height of these hills is about twenty metres above the level of the sea. Another canal was prepared across this obstacle which divided it entirely, and became deeper by some metres below the Mediterranean, in order that penetrating the waters of this sea, and being worked by dredges, the necessary depth would be obtained for navigation.

Two years and 20,000 (fellahs) workmen were necessary to bring the waters of the Mediterranean to lake Timsah.

This internal lake being free from the great risings of the Nile, was entirely dry. At present it is occupied by the waters of the Mediterranean at a constant level, which admits of the construction of the famous interior port of conditions, not to be improved in any respect. Its depth is such, that, it has allowed with very small labour of the canal being continued to near Tonsum, which borders on the land of Serapeum.

From the day when the waters of the Mediterranean penetrated to lake Timsah (November, 1862), the solution of the problem became very simple; for in reality the communication between the two seas was established from that day, for a barque (although small), but still a barque, could make good the passage from Port Said to Suez.

One or two words on this fresh water canal. This is not the com-

plement of the maritime canal; but its indispensable companion, there being no doubt that without it the other would have been impossible. In fact, in the whole of its extent, from Port Said to Suez, there is not a drop of drinkable water to be found: there are some few salt water wells, and nothing more. How then were the wants of so many persons to be supplied, collected together as they were in this locality. How were future necessities of this kind to be provided against. The Nile was far away, and its waters only, when they run up, could reach lake Timsah. The whole of the east of the isthmus was in want of drinkable water. The Nile was pressed into the service! At Zagarig, where the pressure of water from the old canal was found, the part which carried the water from El Nady to the land of Goshen, was enlarged until near lake Timsah.

As its level at this point was elevated six metres above both seas, two sluices were formed, which admitted of easy communication with the lake, and by a canal of derivation which followed nearly parallel to the maritime canal, the water of the Nile was carried to Suez: with which not only Ismalia, the then centre of the works, but also the whole of the isthmus, as far as Suez, which from only this circumstance of wanting water, from being an impracticable morass, destitute of all vegetation, became surfeited with an abundance of drinkable water, and arid sands have become rich and fertile.

A powerful machinery was established near lake Timsah in order to keep up the supply of fresh water, as far as the beach at Port Said; the population of which receives 1,500 cubic metres of it daily, a quantity which satisfies every want, and leaves even more for cultivation and gardens.

The excavation of the northern part of the canal became certain as soon as the Mediterranean penetrated to lake Timsah. Here a new establishment was formed. As if by enchantment, laboratories, dwellings for workmen, superintendents, and engineers sprung up: the miracle witnessed at Port Said was renewed: and in a most remarkable manner Port Said at least had communication with the entire world, whilst at Ismalia every thing was artificial.

Ismalia, in fact, arose from the shore of lake Timsah at the very point where the fresh water concluded. This place from the remotest antiquity was nothing but an arid desert; to day it is something more than an oasis. Being inhabited by crocodiles, and therefore a terror for men from the remotest tradition, it is now useful and its banks are flourishing, it has abundance of trees, contributing to its cheerfulness, population, and fertility.

On leaving lake Timsah the canal meets with downs which mingle themselves with Serapeum. It was necessary to attach these downs, and as among the thousand varieties in the course of the works which were found, not the least difficulty was seeing the whole scheme deprived of the fellahs, who were its workmen, it was indispensable to call in other means.

On this occasion the fresh water canal called to its aid a great agent. In fact, not rising above the land of Serapeum six metres above the

sea, and the canal of derivation being at this height at the time of the rising of the Nile, it was utilized in the following manner. At Serapeum an additional channel was dug nearly two metres below the level of the canal for fresh water, and with the assistance of small channels admirably worked, the Nile water was introduced. Some dredges were obtained at lake Timsah, from whence they were passed by the sluices of the fresh water canal and from this canal by the ramifications or small channels above mentioned as far as Serapeum, where an aperture was worked in the principal canal at five metres of elevation above the level of the sea.

At Serapeum there is a vast receptacle called the *Bitter Lakes*. These large spaces are nine metres below the level of the sea, so that penetrating into them all dredging is useless, except in certain smaller places of the lake, which have only two or three feet of depth. The height of the water in these lakes was raised by a very simple process. When the dredges which were used at Serapeum came to one or two metres below the level of the Mediterranean, a dyke was opened that was established at Tussum, on lake Timsah, and its waters were allowed to penetrate to the sea with due precaution.

The amount of water necessary for this which was robbed from the Mediterranean and the Red Sea was really marvellous. One hundred and fifty cubic metres of water have been calculated, which at five millions per day, it would require ten months for these deposits to be raised to the ocean level, that is, that a sandy plain should be converted into an internal sea. We have already said, and we repeat it, that the work we are contemplating is veritably Titanic. To create ports with the assistance of lime and sand, to improvise cities, to perforate mountains, to take from rivers their fertilizing powers, forcing them to appear in the desert to propagate abundance, to yield health and life, to alter the course of seas, to carry immense oceans by little and little to the very springs of the earth, these, indeed, are works which have astonished the whole world; these things we have seen with astonishment—*Et removabis faciam terræ:* whole centuries have been necessary to comprehend the meaning of this: and to-day it is at length understood. Science, energetic determination, and perseverance realize prodigious truths.

At the southern extremity of the Bitter Lakes the ground becomes arenaceous plains somewhat stony, called the soil of Chalouf, which had become necessary for the continuation of the works, since it was found impossible to continue the works here as at Serapeum, and at length from the declivities of Chalouf commenced the plains of Suez, which for the space of fourteen kilometres were almost horizontal, and a level was formed nearly equal between the two seas. Likewise in this locality. as in Chalouf, the works have been verified in the seas, and the canal has been filled with the disappearance of the great dyke, which was protected from the invasion of the Red Sea. This extreme point terminated in the Sea of Suez. The Red Sea, which separates Arabia from Egypt, is divided at its northern extremity into two gulfs, nearly equal, between which Mount Sinai stands. At the bottom of

the western gulf stands the ancient city of Suez, forming the port of arrival of all vessels proceeding from Arabia, and in these days of steam of those which come from the Indies. Suez likewise is also a point of arrival from the East for Mecca.

We have now followed succinctly the works carried out at Suez from their commencement to their inauguration, especially in a manner which gives some opinion of them. We must add that the foregoing study of them is no more than a somewhat laborious and conscientious extract of all the articles and writings which we have met with on the said work, and we believe that it will give only some idea of it.

In our second view, which will correspond with the plan which we have proposed, we shall enter on the practical results of the canalization of the isthmus of Suez, in a commercial point of view! which would be arid to satiety, but which we do not consider the less interesting. We shall conclude our notice with some account of the enormous force of men and material employed in it. Thus stand the figures: 50 large dredges, called *Le Long Couton:* 14 small ones; 18 lifters; 67 enormous gabarres of valves; 52 locomotives—6 machines of fixed steam; a large steamer, and an abundance of steam launches, many barges, and a considerable amount of boats for towing and lighters. The total of strength employed at the isthmus is thus raised to 18,000 steam horse power, which represents the work of one hundred thousand men. Besides 10,000 operatives of all countries we have seen distributed on this work in a desert, where only the sands and the wind were formerly known, and where at present, life, labour, and skill predominate to an extraordinary degree.

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## THE ONEIDA COLLISION AND ITS SUFFERERS.

ENOUGH indeed has been said on the subject of the unfortunate *Oneida* collision off Japan, and even on the last occasion of alluding to it in the House of Commons nothing new was added, no new facts were gained, but nautical opinions including our own expressed long ago were confirmed. All this indeed might have been let alone, as to the good that was then done. In and after those opinions had been expressed, where they might have weight and authority, what benefit could be derived to the whole subject from a community of gentlemen unknown mostly to the sea as is formed by the House of Commons. However it was disputed there, and we allude to it that we might preserve the opinion of our Government on the subject.

"MR. GLADSTONE said the United States had the right to expect the deepest sympathy at our hands, on account of the calamity which we had unwittingly inflicted upon them, and he was quite sure that if our relative positions were changed, and that 112 persons had been lost in an English vessel in consequence of a collision with an American

vessel we should feel it. He regretted that this matter had been brought before the House. He doubted exceedingly whether the discussion was useful to Captain Eyre. Here was the case of the error of a moment, and what was it when they considered the circumstances of a collision at sea—the difficulty, and the darkness, and the confusion? And yet the imperious necessity of the public interests of navigating nations required that these momentary errors should be visited with severity, and our Merchant Shipping Act made such an error a statutable offence, and subjected the offender to the powers of a court, subject to an appeal to the Board of Trade. It would have been far better to have left the matter in the hands of the public than to have provoked a discussion in this House upon it, because it was almost inevitable that in discussions of this kind allegations were made which would be met by others which tended to aggravate the case, and the very fact that new topics were introduced which might seem to enhance the culpability of the captain, would have their effect on the public mind, and be more injurious to Captain Eyre than any benefit which he might derive from the able statements which were made in his defence.

"There were only two points which it was necessary to consider—first, the special condemnation which had been applied by the Board of Trade, and secondly, the general principles involved in the case. His hon. friend (Mr. Tracy) had confined his motion very much to the terms of the judgment of the Board of Trade; but in his speech he took a much broader ground, and his whole speech had been a complaint on the part of Captain Eyre, not only of the declarations of the board of Trade, but of the judgment of the court of Yokohama. As regarded the declarations of the Board of Trade, he called on the House to remember that that Board exercised an appellate jurisdiction rather by the general commission entrusted to it by parliament than under any judicial law, What was the point referred to the Board of Trade? The hon. gentleman said truly that an appellate court could not enhance a sentence, but he was not aware of any established rule of judicial procedure which prevented a court of appeal confirming a sentence; from reviewing the evidence on which it was founded; and even from conveying an opinion that the evidence would have justified a severe sentence. Captain Eyre submitted a double plea to the Board, and memorialised it to review not only the decision of the court of Yokohama, but the evidence on which it was founded, and the Board of Trade, in considering that evidence, stated that in its opinion it might have been carried further. In delivering that opinion, the Board did not act merely as a department of the executive Government. It consulted professional advisers, who gave their judgment judicially and on their responsibility, and in quoting their opinion stated that the sentence of the court of Yokohama fell short of what might have been pronounced. Under those circumstances, it appeared to him that the issue before the House was an extremely narrow one, and extremely difficult to sustain.

"Would it have been satisfactory to his hon. friend to have begun by

admitting that the sentence of the court was unassailable, but that the objection he took was to the terms in which the Board of Trade had given their sentence in answer to the application of Captain Eyre? As regarded the general question, what did a debate of this kind amount to? Might it not be described in one sentence as an appeal on the part of his hon. friend from the judgment of the Board of Trade to the House, to bring in the course of a discussion, which commenced at eleven o'clock that evening, the merits of a collision at sea which took place at the other end of the world, when it had already been tried, not only by the Board of Trade in this country, but by the court that sat on the spot, which had the opportunity of hearing the whole of the evidence, and had delivered a judgment on its own responsibility. There was every opportunity for the parties to be heard, and if there was any deficiency it was much more the fault of the *Oneida* than the *Bombay*. That court delivered a responsible judgment, and they were now solicited to try that responsible judgment, and substitute an irresponsible judgment in its place; or, in other words, to substitute a hasty for a deliberate judgment.

"The hon. member for Portsmouth showed great confidence on this and some other matters; but he appealed to his prudence, if he could approach him in that capacity, and would ask him whether it was wise or safe to appeal from a judicial tribunal to a popular and mixed assembly acting under the influence of laudable and natural feelings of sympathy and commiseration, and to endeavour to overthrow a judgment such as that court had pronounced. This was a matter in which the character of the country was involved. They had by the principles they had introduced into the merchant shipping code given a pledge to the world, which was much interested in this Act as Englishmen, and they had stated that they pledged themselves by this law to treat as an offence a case of neglect to render due assistance in case of a collision, and would they not compromise their character if they now receded from the fulfilment of their obligation, and thus make a precedent for the non-fulfilment of future obligation of a like character. His hon. friend had said that there ought to be a further inquiry into the conduct of Captain Eyre, but he had not pointed out in what manner it ought to be made. The only further inquiry that could be made was by the Board of Trade, and there was no power to order another court to make a further investigation. Setting aside all reference to the United States and the excited feelings of the people, the House of Commons would see that the motion of his hon. friend rested on grounds that could not be sustained, and would tend to tempt the House into the adoption of a course which would be full of evil and national difficulty."

Mr. H. TRACY concluded, with the observation that, "as it was pretty generally understood that there was no charge of inhumanity on the part of Captain Eyre, he would not divide the House on the question," and the motion was accordingly withdrawn.

But a large number of families in America had lost relatives, on

whom they much depended for support, and ought to be restored to their comforts as far as we could assist them, and with this view, we are glad to see that a fund has been started in London and Liverpool to aid in the relief of the families and others suddenly bereaved by this calamity, and a great proportion of whom have been thrown into the greatest want by the loss of their relatives, to the number of 111, on board the unfortunate *Oneida*. Sir John Lubbock, Bart., has consented to act as Treasurer to the fund; the Bankers in London are Messrs. Robarts, Lubbock and Co., 15, Lombard Street; the Secretary, Mr. Sydney Smith, of 31, Bush Lane, E.C.

It has been most truly said that, the American people, always generous when distress has to be alleviated, are not backward in doing their part now. But it has been thought a natural return for past kindness to our destitute and starving poor (need we mention the name of Peabody?), as well as an expression of international sympathy on this occasion, for the people of the United Kingdom to unite with the people of the United States in forming a fund for the relief of the sufferers by the sad loss of the *Oneida*. It is almost certain that the success of the movement will be complete. It is to be hoped that the offering itself will be accepted by the American people in a spirit as kindly as that in which it is made.

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## THE LOSS OF H.M. GUNBOAT SLANEY, *on the Paracel Reef: China Sea.*

IN our last was noticed the loss of H.M. gunboat *Slaney*, since which the following particulars have been received of that sad event from Rear-Admiral Kellett, relating we much regret the loss of all her officers and crew, excepting the few hereafter mentioned.

The Admiralty has received the following despatch from the Commander-in-Chief in China, reporting the circumstances of the loss of Her Majesty's gunboat *Slaney*:—

"*Ocean*, at Hong Kong, May 25th

"Sir—I deeply regret to inform you that I have received intelligence of the wreck of Her Majesty's gunboat *Slaney* on the 9th instant, at the Paracel Islands, Drummond Island Reef, and of the loss of all her crew except nine persons. Those saved are:—Mr. C. Milton, gunner; John Douglas, ship's cook; Thomas Owen, quartermaster; a corporal of Marines, name not known; and four Chinese.

The following is a list of the officers and crew who perished in attempting to swim ashore from the wreck:—Lieut. W. F. L. Ellwyn; Mr. Robert S. Evatt, navigating sub-lieutenant; Mr. William F. Ryall, assistant surgeon; Mr. James Young, engineer in charge; Mr. Daniel Wishart, engineer; Mr. John Smith, assistant engineer, first class; Edward G. Wells, chief gunner's mate; William G. Court, ship's

steward; Alexander Todd, boatswain's mate; Benjamin Pink, quartermaster; Evan Jones, leading stoker; Joseph Jones, sick berth attendant; William H. Burgess, A.B.

George Annereau, Thomas Warren, and David Ward, stokers; William Boxell, Harry Roberts, Patrick Hosey, George Brice, William Gear, Henry Ellington, Francis Burrows, William Pepin, and John E. Ventries, ordinary seamen; Samuel Boston, private R.M.L.I. And sixteen others whose names I have not yet been able to ascertain.

A Chinese servant, who was saved by clinging to the top of the cooking galley, and who found his way to Hong Kong, gives the following account of this disaster:—The *Slaney* left Singapore on the 14th of April for Hong Kong, and had light winds and calms until the 4th of May, when a strong breeze sprung up, which rapidly freshened into a gale of great violence: indeed, it is described as a typhoon. On Thursday, the 5th of May, the *Slaney* lost three of her boats. On the following day she was dismasted and lost her last remaining boat. On Saturday the sails were blown away. Sunday appears to have been without further disaster, but at one o'clock on Monday morning, the 9th instant, the ship struck on the Paracel Islands, the bow being high and dry on a reef, the stern in deep water, and a heavy sea washing over the decks.

On Tuesday, the 10th, twenty-four persons attempted to swim to an island, and on the following day twenty others left the ship in the same way. Of all these, among whom were many good swimmers, only two reached the land. The remaining seven who were saved were taken off the wreck by fishermen's boats. The instant the news reached me (at noon on the 23rd instant) I despatched the *Salamis* and *Adventure* to the scene of the wreck to bring away the survivors, as well as to afford assistance to the crew of the ship *Caractacus*, which went on shore quite close to the *Slaney* during the same storm. They have not yet returned, and I am therefore compelled to forward this imperfect account of the matter by the mail which leaves to-day. Further particulars shall be sent by the first possible opportunity.

This sad event has cast the deepest gloom over the large squadron assembled here. The number of officers and men to return to England in the *Donegal* would have been completed by the arrival of the *Slaney*, and this circumstance has touched all hearts with intense sympathy with the relations and friends of the deceased. Lieutenant Ellwyn, who commanded the *Slaney*, was a most amiable, excellent officer, and a thorough sailor. There can be no doubt that everything was done to save the ship which skill and courage could achieve. The *Slaney* was in a high state of discipline, and her crew were remarkably steady, well-behaved men.

I have the honour to be, Sir,
Your most obedient servant,
HENRY KELLETT,
Vice-Admiral and Commander-in-Chief.

The Secretary to the Admiralty.

The following is a list, forwarded from the Admiralty, of officers and men lost in her Majesty's gun-vessel *Slaney*, wrecked on the Paracel Islands, 10th of May, 1870:

W. F. Ellwyn, lieutenant commanding; R. S. Evatt, navigating sub-lieutenant; W. F. Ryall, assistant surgeon; J. Young, engineer in charge; Daniel Wishart, engineer; John Smith, assistant engineer, first class; E. G. Wells, chief gunner's mate; A. Todd, boatswain's mate; Benjamin Pink and Thomas Owen, quartermasters; W. Burton, leading seaman; Evan Jones, leading stoker; Joseph Jones, sick berth attendant; W. G. Court, ship's steward, third class; W. H. Burgess, W. Patten, and G. Trimble, A.Bs.; H. Roberts, H. Ellington, G. Brice, W. Gear, W. Boscell, W. Pepin, J. E. Ventries, W. Claringboul, T. Hitchcock, Patrick Hosey, H. Raille, W. Hart, T. Moon, and F. Burrows, ordinary seamen; D. Ward, G. Annereau, and T. Warren, stokers; S. Barton, J. Fenn, S. Delve, and W. Poor, privates Royal Marine Light Infantry. Chinese—Alung, officers' cook; Ah Woon, engineers' servant; and Hung Ching, stoker.

The following is a list of those saved: C. Milton, gunner, second class; J. Douglas, ship's cook; W. Diamond, acting corporal Royal Marine Light Infantry; R. Lane, A.B.; and G. Brock, ordinary—none of whom, except Brock, could swim. Chinese—Chunling, ward-room servant; Apan, captain's servant; Achat, warrant officer's servant; Affoo, stoker; and Achuck, carpenter's crew.

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## Royal National Life-boat Institution.

At the meeting of this Institution on the 7th July, it appeared that the *Arundel Venables* life-boat, of Arklow, Ireland, went off to the schooner *Enchantress*, of Belfast, which had struck on the Arklow bank during a strong north-westerly wind. The crew of four men were taken off the vessel, over which the sea was breaking, and they were safely landed by the life-boat. The Ramsgate life-boat *Bradford* went out twice during the past month in response to signals fired from the *Gull* light-ship indicating vessels in distress; but happily her services were not ultimately needed. The Broadstairs, Ormes Head, and Laytham life-boats have also recently been launched on service.

The thanks of the Institution, inscribed on vellum, accompanied by a model life-boat, were voted to Captain Francis Shaw, late harbour-master at Ramsgate, in acknowledgment of his long and valuable co-operation in the management of the Ramsgate life-boat. Also the second service clasp of the Institution to Mr. William Hills, chief boatman in charge of her Majesty's Coastguard at Padstow, Cornwall, who had previously received its medal, on his retirement from the post of coxswain of the Padstow life-boat. Also a reward of £5 to

Mr. John Connell, chief boatman of her Majesty's Coastguard at Tallaghan, Ireland, and four other men, for putting off in a coastguard boat in a strong wind and heavy sea to the assistance of four men whose boat had capsized on the bar, on the 1st April last. They succeeded in rescuing one man, who was clinging to the bottom of the boat in an exhausted state, but the other poor fellows had been washed off and had perished before their arrival. Various other rewards were likewise granted to the crews of different shore boats for saving life from wrecks on the coasts of the United Kingdom.

Payments amounting to £1,900 were ordered to be made on various life-boat establishments, and to meet in part those heavy expenses £1,000 stock of the funded capital of the Institution was ordered to be sold. With 220 life-boats under its management, the expenses of the Institution continue to be very large. The committee expressed their sympathy with the family of the late Mr. Charles Dickens on the occasion of his recent death, as through his weekly publications he had, in conjunction with his friend Mr. W. H. Wills, helped forward the great work of the Institution. Various works at life-boat stations were also ordered to be carried out at the cost of £352. Twenty guineas had been received through Mr. Thomas Baring, M.P., the chairman of the Institution from the Worshipful Company of Merchant Taylors.

Contributions had also been remitted to the Society from its branches at Birmingham, Swansea, Alloa, Stirling, and Newark. The late Mrs. Rolleston, of Swindon, who had long been a subscriber of £20 a year to the Institution, had left it a legacy of £500. New life-boats had just been sent to Clovelly, North Devon, and Ardrossan, Scotland, and on the arrival of the boats at their stations they had been warmly welcomed, the demonstration on the occasion of the launch of the Androssan life-boat being of a very imposing character. The Glasgow and South-Western Railway Company liberally granted that boat a free conveyance over their line from Carlisle to its destination. A new life-boat establishment was also ordered to be formed in Morte Bay, near Ilfracombe. The shipmasters of the port of Bristol in the African trade had expressed their intention of presenting the entire cost of a life-boat station to the Society, and of contributing £50 annually towards its support.

The Society's instructions for the restoration of the apparently drowned, founded on those of the late Dr. Marshall Hall, combined with those of Dr. H. R. Silvester, continued to be extensively circulated, and were occasionally found of the greatest service. Reports were read from Captain J. R. Ward, R.N., the inspector, and Captain D. Robertson, R.N., the assistant-inspector of life-boats to the Institution, who had recently respectively been engaged on tours of inspection of the life-boats on the west coast of England and the Scotch coast, most of which boats they found in very good order. The proceedings then terminated.

# Nautical Notices.

## Particulars of Lights Recently Established.

(Continued from page 384.)

| Name. | Place. | Position. | F. or R. | Ht. in Ft. | Dist seen Mls | [Remarks, etc. Bearings Magnetic.] |
|---|---|---|---|---|---|---|
| 69. Telegraph Ship | Removal of | ... ... ... | ... | ... | ... | See Notice No. 69. |
| 70. Chop tank River Entr. | Chesapeake Bay | Light vessel in 3½ fath. | F. | 34 | 10 | Established 1st June, 1870. |
| Mendota Pier | Lake Superior | ... ... ... | F. | 42 | 12 | Established 1st June, 1870. |
| Charleston Bar | Beacon Lights | Alteration | ... | ... | ... | See Notice No. 70. |
| | Changed, red | ... ... ... | ... | ... | ... | See Notice No. 69 of 1869. |
| 71. Tarifa colour | Off Moles | 2 Lts. above | F. | 15 | ... | Vessels should pass south of them. |
| Trieste Roads Light vessel | Building | each other | F. | 21 | ... | |
| Strongolo Island | Talanta Ch. Greece | 38° 48·3′ N. 22° 49·8′ E. | R. | 134 | 16 | Established 20th June, 1870. |
| 72. Humber R. | Leading Lights | See description | F. | ... | ... | Established 25th July, 1870. See Notice No. 72. |
| Foghorn at Holyhead | Breakwater | ... ... ... | ... | ... | ... | For guidance of Mail Point. |
| 73. | | | | | | |
| 74. | | | | | | |
| 75. North Coast of Germany | Discontinuance | of Lights | ... | ... | ... | See Notice No. 75. |

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

No. 69.—English Channel—Entrance.—*Removal of Telegraph Ship.*—With reference to Notice to Mariners No. 50, dated 30th April, 1870, announcing the establishment of the Telegraphic Station vessel *Brisk* by the International Mid-Channel Telegraph Company, on the Admiralty patch, in lat. 49° 20′ 30″ N., long. 6° 17′ W.:—

Notice is hereby given, that the vessel has been removed and will not be replaced; the lights and signals described in that Notice are consequently discontinued.

No. 70.—South Carolina.—*Beacon Lights for Charleston Bar.*—With reference to Notice to Mariners No. 55, dated 10th May, 1870, respecting the establishment of two beacon lights on Morris island, to lead over the bar of Charleston harbour into the Main Ship channel:—

Information has been received that the outer, or eastern, lighthouse is placed 1½ cables from the point of Lighthouse inlet, and near high-water mark; the inner lighthouse is placed 360 yards W. by N. ½ N. from the outer lighthouse.

[*All bearings are Magnetic. Variation* 2° *Easterly in* 1870.]

No. 71.—Spain—South Coast—Strait of Gibraltar.—*Alteration in*

*Tarifa Light.*—With reference to Notice to Mariners No. 69, dated 9th September, 1869, respecting an intended alteration in Tarifa light:—

Information has been received that the alteration described in that Notice has been made, and the colour of the light has been changed from white to *red.*

No. 72.—*Leading Lights, River Humber.*—With reference to Notice to Mariners No. 49, of 30th April, 1870, respecting the establishment of four leading lights on the northern, or Yorkshire, shore of the river Humber, to facilitate the navigation between Paull and Kingston-upon-Hull:—

The Trinity House, Hull, has given notice that, from the 25th day of July, 1870, the four lights will be exhibited, viz.:—

Two white lights at Thorngumbald Clough, about half a mile to the southward of Paull lighthouse, on the line of the leading mark on the Admiralty Chart.

Two white lights at Salt End, northward of Paull lighthouse, near Hedon haven, also on the line of the leading mark on the Admiralty Chart.

At about half a mile above No. 8, black buoy, a light from the high lighthouse will be visible.

For vessels bound up the river, the present Killingholme lights serve as leading lights to the point where the new lights at Thorngumbald Clough will become leading lights, and the latter will serve as such until the two lights at Salt End are in one, when the last mentioned will guide a vessel up to the lower part of Hull road.

Also, that from the same date the light at Paull will be discontinued.

Also, that from the 31st day of August the Hebbles floating light will be discontinued and the vessel removed.

No. 75.—GERMANY—NORTH COAST.—*Discontinuance of Lights and Sea Marks.*—Notice, dated the 17th July, has been received from the North German Ambassador, that orders have been given to remove the sea marks, withdraw the light-vessels, and extinguish the fixed lights along the North coast of Germany.

*Hydrographic Office, Admiralty, London, 18th July,* 1870.

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## RED SEA—*Notice No.* 3.

The following general directions for the navigation of the Red Sea are from remarks by Navigating Lieutenant John C. Richards, of H.M. Indian troop ship *Malabar*:—

The track usually adopted by H.M. troop ships and other large steamers after leaving Suez, is to keep the western shore on board as clearest, passing Zafarana light from 3 to 5 miles distant, and checking that distance by bearings, as estimated distances in the Red Sea are most deceptive. From Zafarana light they steer to pass Ras Gharib at 4 or 5 miles distant, still keeping to the western shore; passing west of the 3½-fathom patch between Ras Shukhair and Tur, the high land of Zetti is made on the bow, and a course shaped for Ashrafi light. The position of Mount Akrab in this vicinity may be safely depended on as it can generally be seen at night.

There is no difficulty for steamers in the Strait of Jubal by night or day, if the distance of Ashrafi light be well determined by change of bearing. This precaution in taking each fresh departure is absolutely necessary, as between determining the distance by bearing, and judging the same by the eye, an error of three miles in ten has been found by different observers.

Entering the Strait of Jubal from the southward pass Shadwan island close (one or 1½ miles), and then steer a course to pass about three miles from the outlying reefs of Aboo Nahas and the Horse-shoe, until Ashrafi light be seen. Shadwin island has been seen when 35 miles distant.

On the centre of the northern and larger Brother is a high pole with cage top, all may be approached safely.

There is some doubt about the latitude of these Brothers; Navigating Lieutenant Richards has not had the opportunity to determine whether they are 2½ or 3 miles out, but he considers the islands are placed too far north on the chart.

The Dædalus reef, with its capital light, may be passed on either side, and a course then shaped for 4 miles west of Jibbel Teer. St. John's island looks in the distance like a haycock. The south-west Zebayer island is passed on the same side, and at the same distance as Jibbel Teer; thence pass inside Jibbel Zooger, going between it and Aboo Eyle, keeping on the Jibbel Zooger side, as a reef lies off the north-west side of the western Aboo Eyle. Shape the course now to pass Mocha about 6 or 7 miles distant, and thence to Perim.

The danger marked in the small straits of Bab-el-Mandeb is doubted, the *Malabar* having passed close over the spot five times without discovering it. It is of importance to know this, as the island side in this channel is the safest, the Oyster rock with its outlying reef not being easily seen at night.

In this route many additional lights are wanting. A better one is required at Suez, and especially one at Ras Gharib. A light would be useful on Shadwan, and also on the Brothers, which latter are low and not seen more than a couple of miles off at night. On Jibbel Teer one might be well placed on low land on the west side; also on Aboo Eyle, where it might be built on the reef running off the north-west side of the western rock. And lastly, a light-vessel moored outside the shoal patches reaching 4 miles off Mocha would be of great assistance in rounding those shoals at night.

*Currents.*—As a general rule the currents are not strong. With a strong S.S.E. wind, for about 3 days in December, when between Jibbel Teer and Jibbel Zooger, it ran with the wind at the rate of 1¼ miles per hour, but in ordinary weather, such as is generally experienced, the velocity does not usually exceed half a mile an hour. On two occasions in the vicinity of the Brothers (near Shadwan), a westerly set of half a mile an hour, lasted about 12 hours. The greatest set noticed in the Gulf of Suez was half a mile an hour to the eastward.

## Strait of Jubal.

Observations on the tides and currents in the Strait of Jubal made by Captain Henry D. Grant, R.N., while conducting the operations for the recovery of the treasure from the wreck of the P. and O. steamship *Carnatic*, in December, 1869.

The rise and fall of the tides on all the banks between Jubal and

Shadwan islands are much affected by the direction and force of the wind; ranging from 4 to 6 feet at full and change.

The direction of the tides (the ebb running to the N.W. and the flood to the S.E.), as shown on the chart of the Strait of Jubal, is correct, but within the distance of 2 miles from the reefs and Shadwan island they are uncertain, setting in towards the reefs and circling round them.

The reef on which the *Carnatic* was lost is known as the Aboo Nahas, that to the northward as the Horse-shoe.

For the space of nearly a month a steady N.W. current was found passing southward of Aboo Nahas, and setting westward and northward of the Seaul islands. Captain Alli Suggery of H.H. the Khedive's steamship *Tor*, states that it sets out again north and south of Jubal island.

The strength of this current depends on the age of the moon; at change it runs about 2 miles an hour. On three occasions, when at anchor for a week or ten days off Aboo Nahas, the vessel was riding with her head E.S.E. and a strong N.W. wind blowing the whole time. Strong under currents were found on the north side of the reef.

The Ashrafi being a first class light, can be seen clearly when to the southward of all the reefs, with attention to its bearing, and Shadwan island always in sight, no vessel ought to be endangered. Vessels should pass the Ashrafi light at a distance of 1 to 2 miles, and then a course should be shaped to give the Horse-shoe and Aboo Nahas reefs a berth of 3 to 4 miles.

WINDS AND WEATHER.—The following has been collected from various sources, including a communication from Colonel Edward Stanton, C.B., H.M. Consul General Alexandria, January, 1870 :—

Hurricanes are almost unknown in the Red Sea, but fresh gales and close-reefed topsail breezes are of constant occurrence.

Between Suez and Jiddah northerly winds prevail all the year round. From December to March inclusive, these winds blow fiercely, moderating at full and change, with an occasional southerly breeze foretold by damp weather. During these months westerly gales occur in the Gulf of Suez and as far south as the Dædalus reef, accompanied at times by dense fogs of dust; violent north-east winds on the Arabian coast near Jiddah are also found.

In July, August, and September, land breezes are occasionally found on the Arabian coast.

Between the strait of Bab-el-Mandeb and the parallel of 17° N., southerly winds are experienced in the middle of the sea from October to May, prevailing from November to March, blowing strong from the south-east in January. About December these winds bring hazy weather with squalls and rain. After February they blow with less strength, and are frequently followed by northerly winds for several days.

In March, April, and May, the weather is unsettled, with easterly squalls and sometimes rain.

The north-west winds commence in June, seldom blowing strong, and becoming light and variable in August and September, with southerly winds, long calms, and hazy weather in the latter month.

On the coasts of this region, land and sea breezes are met with, but northerly winds prevail all the year round.

Rain falls between October and March.

Squalls off the land with hazy weather prevail between April and June, while in July, August, and September the winds are usually light and variable, with frequent long calms.

### The Brothers Islands, Red Sea.

The following Notice has appeared relating to the position of these islands:

Reliable information has been published by the Hydrographic Office, Admiralty, that the position in latitude hitherto assigned to the islands known as The Brothers in the chart of the Red Sea is about four miles in error.

The latitude of the northern island is approximately in 26° 17·5′ N., instead of 26° 22′ N.

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### The Song of the Mediterranean to the Red Sea.

"His Dominion shall be from sea to sea, and from the river unto the ends of the earth."—Psalm lxxii.

Joy attend our union, heaven distinguished sea!
Shining evermore in light of holiest history,
May we be henceforward in such hallow'd purpose blended
As to prophesy together that the nations' feuds are ended.
O'er the sandy desert we have join'd our hands,
Glory to the Eternal such event demands,
We have join'd our waters with a glorious voice,
Let the nations utter through their breadths, Rejoice.*
Apostolic precept in that word awoke,
And that word repeated shall the world invoke;
While the earth remaineth and from sea to sea,
Every voice should utter Blessed Amity.
See the glad barks crowding our just wedded waters!
Hear the joyous music from those fair sea-daughters!
'Tis our nuptial anthem, glory-vestur'd sea!
God the king eternal will'd it they should be:
Shall not all earth's deserts "blossom as the rose,"
When our noble union aids the world's repose?
Through the wastes, once dreary, now the "voice of waves"
Chants a hymn awaking hope in Afric's caves.
Hope amidst the hopeless, that the slave shall be
By the Christian nations made for ever free?
This the noblest triumph of the age shall prove,
Even the mighty union of our Seas above:
What are Science-triumphs to the victory
Of the long oppress'd ones o'er base tyranny?
God with all His angels gazing on the earth
Thus shall bless and hallow this our era's birth.
Thus shall grace the nuptials of the ancient seas,
Through long ages sever'd by His wise decrees:
Now the Eternal Ruler of the earth and ocean,
Shall Himself take part, in all the grand emotion
Which His Creature waketh in his fellow's breast
When from such a union man becomes more blest.

S. E. Miles.

*From "Reminiscences of the Mediterranean and other Poems."*

* "Rejoice in the Lord alway, and again I say, Rejoice."—Phil. iv. 4.

## Review of Nautical Topics.

We read a few days ago that peace no longer prevails in Europe, for France has declared war on Prussia. Her Majesty's proclamation declares England's neutrality as follows:—

"Whereas we are happily at peace with all Sovereigns, Powers, and States. And whereas, notwithstanding our utmost exertions to preserve peace between all Sovereign Powers and States, a state of war unhappily exists between his Imperial Majesty the Emperor of the French and his Majesty the King of Prussia, and between their respective subjects and others inhabiting within their countries, territories, or dominions. And whereas we are on terms of friendship and amicable intercourse with each of these sovereigns, and with their several subjects, and others inhabiting within their countries, territories, or dominions. And whereas great numbers of our loyal subjects reside and carry on commerce, and possess property and establishments, and enjoy various rights and privileges, within the dominions of each of the aforesaid sovereigns, protected by the faith of treaties between us and each of the aforesaid sovereigns.

"And whereas we being desirous of preserving to our subjects the blessings of peace, which they now enjoy, are firmly purposed and determined to abstain altogether from taking any part, directly or indirectly in the war now unhappily existing between the said sovereigns, their subjects and territories, and to remain at peace with and to maintain a peaceful and friendly intercourse with each of them and their respective subjects, and others inhabiting within any of their respective countries, territories, and dominions, and to maintain a strict and impartial neutrality in the said state of war, unhappily existing between them.

"We, therefore, have thought fit, by and with the advice of our Privy Council, to issue this our Royal Proclamation. And we do hereby strictly charge and command all our loving subjects to govern themselves accordingly, and to observe a strict neutrality in and during the aforesaid war, and to abstain from violating or contravening either the laws and statutes of the realm in this behalf, or the law of nations in relation thereto, as they will answer to the contrary at their peril."

Earl Granville has addressed the following letter to the Lords Commissioners of the Admiralty. Similar letters have been addressed to the Treasury, Home Office, Colonial Office, War Office, and India Office.

"Foreign Office, July 19th, 1870.

"My Lords,—Her Majesty being fully determined to observe the duties of neutrality during the existing state of war between the Emperor of the French and the King of Prussia, and being moreover resolved to prevent, as far as possible, the use of her Majesty's harbours, ports, and coasts, and the waters within her Majesty's

territorial jurisdiction, in aid of the warlike purposes of either belligerent, has commanded me to communicate to your lordships, for your guidance, the following rules, which are to be treated and enforced as her Majesty's orders and directions:—Her Majesty is pleased further to command that these rules shall be put in force in the United Kingdom, and in the Channel Islands, on and after the 26th of July instant, and in her Majesty's territories and possessions beyond the seas six days after the day when the governor, or other chief authority of each of such territories or possessions respectively shall have notified and published the same; stating in such notification that the said rules are to be obeyed by all persons within the same territories and possessions.

"1. During the continuance of the present state of war all ships of war of either belligerent are prohibited from making use of any port or roadstead in the United Kingdom of Great Britain and Ireland, or in the Channel Islands, or in any of her Majesty's colonies or foreign possessions or dependencies, or of any waters subject to the territorial jurisdiction of the British crown, as a station, or place of resort, for any warlike purpose, or for the purpose of obtaining any facilities of warlike equipment; and no ship of war of either belligerent shall hereafter be permitted to sail out of or leave any port, roadstead, or waters subject to British jurisdiction, from which any vessel of the other belligerent (whether the same shall be a ship of war or a merchant ship), shall have previously departed, until after the expiration of at least twenty-four hours from the departure of such last-mentioned vessel beyond the jurisdiction of her Majesty.

"2. If any ship of war of either belligerent shall, after the time when this order shall be first notified and put in force in the United Kingdom, and in the Channel Islands, and in the several colonies and foreign possessions and dependencies of her Majesty respectively, enter any port, roadstead, or waters belonging to her Majesty, either in the United Kingdom or in the Channel Islands, or in any of her Majesty's colonies or foreign possessions or dependencies, such vessel shall be required to depart and to put to sea within twenty-four hours after her entrance into such port, roadstead, or waters, except in case of stress of weather, of her requiring provisions or things necessary for the subsistence of the crew, or repairs; in either of which cases the authorities of the port, or of the nearest port (as the case may be), shall require her to put to sea as soon as possible after the expiration of such period of twenty-four hours, without permitting her to take in supplies beyond what may be necessary for her immediate use; and no such vessel which may have been allowed to remain within British waters for the purpose of repair shall continue in any such port, roadstead, or waters, for a longer period than twenty-four hours, after her necessary repairs shall have been completed. Provided, nevertheless, that in all cases in which there shall be any vessel (whether ships of war or merchant ships) of the said belligerent parties in the same port, roadstead, or waters within the territorial jurisdiction of her Majesty, there shall be an interval of not less than twenty-four hours between

the departure therefrom of any such vessel (whether ship of war or merchant ship) of the one belligerent, and the subsequent departure therefrom of any ship of the other belligerent; and the time hereby limited for the departure of such ships of war respectively shall always, in case of necessity, be extended so far as may be requisite for giving effect to this proviso, but no further or otherwise.

"3. No ship of war of either belligerent shall hereafter be permitted, while in any port, roadstead, or waters subject to the territorial jurisdiction of her Majesty, to take in any supplies, except provisions and such other things as may be requisite for the subsistence of her crew, and except so much coal only as may be sufficient to carry such vessel to the nearest port of her own country, or to some nearer destination, and no coal shall again be supplied to any such ship of war in the same or any other port, roadstead, or waters subject to the territorial jurisdiction of her Majesty, without special permission, until after the expiration of three months from the time when such coal may have been last supplied to her within British waters as aforesaid. 4. Armed ships from either party are interdicted from carrying prizes made by them into the ports, harbours, roadsteads, or waters of the United Kingdom, or any of her Majesty's colonies or possessions abroad.—I have, etc.,

"GRANVILLE."

OUR present number gives information on the canal of Mr. Lesseps from the pen of Don Joachim Naomro, second in command of the Spanish frigate *Berenguela*.

M. Ferdinand de Lesseps received a national welcome at the Crystal Palace, a few days ago. The completion of the Suez Canal, one of the greatest, if not actually the greatest, of the engineering triumphs of modern times, has already been recognised by Englishmen in its true importance, but no public opportunity has hitherto been offered them to do honour to its designer. Yet, more than any other nation, we owe to M. de Lesseps the personal credit of his success. That success has been attained not only without our help, but in spite of our disbelief and discouragement. From the time when M. de Lesseps first took up the enterprise, now nearly thirty years ago, down to the time—less than three years ago—when its success began to be assured, there were but few Englishmen who believed that the Canal would ever be made. This disbelief was due, first, to the doubt whether it could ever possibly be made to pay; and secondly, to the persistent ridicule which the late Lord Palmerston used to cast upon the undertaking.

It is too early yet to estimate the political, commercial, or social results of this great enterprise. Those results will manifest themselves but slowly, but they may be none the less because of their gradual development. The sailing ships will still go to India and Australia round the Cape, and the heavy traffic will still go by that route just as some portion of the heavy traffic at home still goes by the canals. But the steam traffic with the East will, of course, go through the

Canal, and an increasing portion of the traffic will go in steamers. The new route saves forty-nine per cent. of the distance in the sea voyage between England and India, and saves France, and the Mediterranean nations, fifty-two per cent. of the distance. M. de Lesseps has, in fact, turned out the Overland Route into a sea voyage. It is, however, something more than this new facility of communication between East and West that the fête meant to celebrate. It is an episode in the long rivalry of the two great Western nations. We have fought together for the spoils of war; we fight now for the victories of peace. In this great rivalry of useful works and noble enterprises we can celebrate each other's triumphs, and do honour to each other's heroes. M. de Lesseps comes amongst us as a conqueror. He has added one more to the victories of science over nature, and the triumphs of man over the material obstacles which bar his progress. In giving him a welcome among us, and joining in the hearty congratulations which always wait upon success, we do so with all the more satisfaction as we have cordially acknowledged that success to be due exclusively to his own genius. M. de Lesseps is the kind of man whom Englishmen always delight to honour. The names they most proudly commend to the emulation of their sons are chiefly those of successful engineers. The triumph over material obstacles is the kind of victory which all nations may join to celebrate. The captain of industry, the conqueror in the warfare of peace, is one whom all may unite to crown. Such a reception will have an international significance. It may not promise that henceforth old rivalries shall be over between England and France, but it is at least the prophecy and promise of a time when that rivalry shall be fought out in friendly conflict.

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## Navigation of the Red Sea.

This is one of those parts of the world which has not yet been thoroughly examined. Some of its errors were exposed by the Abyssinian war and corrected accordingly. We find the following in the *Daily News*:—

The merchants and shipowners interested in the trade to and from India, *vid* the Suez Canal, will gather but scant comfort from Mr. Grant Duff's reply to the pertinent question put by Mr. Gourley on the 4th of July. The member for Sunderland, who has before rendered useful service in this matter, asked whether the statement made in Mr. J. C. Parkinson's "Ocean Telegraph to India," as to certain islands in the Red Sea being wrongly marked in the charts, was correct; and the Under-Secretary of State answered that it was true, but that the Admiralty knew it before. A ship of war had reported the islands known as "the Brothers" to be in a different latitude to that given, and the news was confirmed by observations taken from the *Great Eastern*. The *Great Eastern*, we may remark in passing, has

never been within some hundreds of miles of the islands in question; and it was from the other ships of the Telegraph fleet that the discovery was made by Captain Halpin and the commanders who worked under him. The Admiralty is so far satisfied, however, that the charts have been incorrect, that it has had them altered, and public notice has been given of the change. An extract which we quote elsewhere from Mr. Parkinson's interesting volume shows that a different estimate of the importance of this error is taken in some quarters from that of Mr. Grant Duff; and there is reason to believe that other dangerous islands in the Red Sea are wrongly marked on the charts. The cable laid between Suez and Aden and at the bottom of the sea, is said to pass over or through "the Brothers," as they were marked on the uncorrected chart; and if, as is feared, there are other instances in which "rocks, reefs, and shoals are given as deep water, and deep water as rocks and reefs," we may hope that the promised co-operation with the French Government will be hastened, and that the Red Sea will be speedily re-surveyed. Every idle vagabond in Suez has dubbed himself a pilot since the opening of the Canal; and the conjunction of incompetent pilotage, untrustworthy charts, and strange waters, is not calculated to strengthen the faith of underwriters, or to ease the minds of those interested in ventures in the Red Sea.

DANGERS OF THE RED SEA.—In illustration of Mr. Grant Duff's answer to Mr. Gourley's question on the 4th of July, we quote the following extract from Mr. Parkinson's "Ocean Telegraph to India:" —"Certain inaccuracies in the existing charts of the Red Sea having been demonstrated, its waters will be probably re-surveyed, and the geographical positions on it correctly laid down by the Admiralty. It will be a somewhat perilous highway for strange vessels until this is done, for with the evidence of its increasing traffic before our eyes, there has been something disagreeably suggestive in the conclusion forced upon us. So long as the observations leading up to this conclusion had been taken by one ship only of the telegraph fleet, we deferred impugning the correctness of the charts, although the opinions of our own navigators were confirmed by the local pilot. But now that the captain of one ship landed a party on some dangerous rocky islands in mid-channel, to ascertain their bearings—when independent observations have been taken several times from two other ships, and the concurrent testimony proves these islands to be from four to five miles out of the position laid down in the chart, it becomes a duty to speak out. Let all ships coming to India *vid* the Suez Canal take warning, therefore, that the charts of the Red Sea are not to be depended on; and that if the deep-water line, as they give it, be followed, such ships are likely to find themselves wrecked on the Brothers (erroneously given as in lat. 26° 22′) islands, which are especially dangerous from their being without appreciable elevation, and from their having deep water right up to them. Ali, the pilot, quietly remarked, "I know that—all P. and O. captains know that—

charts no good—Brothers much out. On one big ship one day, going right ahead full steam—and I nearly catch him;" and added that the islands Mussamoroo and Delgable, and "much more islands in Red Sea," are "quite many miles out—every one knows that." That the soundings given on the charts should have been found insufficient where definite information was wanted most, is interesting chiefly to the owners of the cable just laid down; but that rocks, reefs, and shoals should be given as deep water, and deep water as rocks and reefs, is a fact so pregnant with disaster, so infallibly certain to lead up to catastrophe and loss of life, that it behoves all interested to urge its remedy with the least possible delay.

Mr. G. Duff in reply to Mr. Gourley read a memorandum from the Hydrographer to the Admiralty that the bearings of the Brothers Islands had been found inaccurate in the chart, and this was subsequently verified by the observations made in the *Great Eastern*. The chart had been corrected and due notice given to the public. It was not an error of a serious nature. With respect to the survey of the Gulf of Suez and the Red Sea, her Majesty's Government had been in communication with the Government of the Emperor of the French with a view to joint action, and he hoped that operations would be commenced at the proper season, which would be in November next.

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## CAPTAIN MOODY'S FLOATING LIGHT-SHIP.

CAPTAIN Moody has been making an experiment in his floating station, an account of which that follows we have received from him. Our readers will find a description of it in page 388 of our last volume. As a riding craft we entertain a high opinion of it, and doubtless in the way of running, when necessary, she would also do her part.

A party of gentlemen running down to Grays' Station lately, to inspect a new model floating on the Thames, were for some time unable to convey to the railway porter an idea which would serve him to guide the excursionists to the spot they sought. The chief of the party explained the kind of craft whose whereabouts he wished to find, and the man, brightening up, hit it at last in the expression, "Oh it's that four-cornered thing, is it?" Whereupon, with a glance savouring of pity at the band, he imparted the desired information. A few steps through the straggling and not over fragrant river-side collection of houses brought the strangers to the wharf, where they sat upon a half-decayed wherry, while negotiations were conducted with a Gravesend waterman, who, being accidentally on the spot, wished to make the most of his luck by demanding three times the amount ultimately given him to row the party off to the "thing" which had been termed four-cornered.

The fickle wind and sullen sky did not proclaim a sailing morning. From the high wharf, the white-hulled something looked like a huge starfish with four rays, resting low on the surface of the Thames, with five main and mizen fore-and-aft sails, and gib, sunning themselves above the back of the creature. One gentleman, who had the smell of the kitchen garden still about him, and who had never seen a star-fish, hinted that the affair reminded him rather of a peculiar kind of vegetable marrow (the custard marrow) which he had carefully watered at daybreak. Everybody agreed that the article was a novelty; and the strongest expression upon the faces of the boat-load of visitors was undoubtedly polite incredulity. Upon approaching the craft, "Telegraph Ship" was seen inscribed; upon rounding her the words "Sea Refuge" appeared.

The visitors walked gingerly over the upper shell of one of the star-fish's rays, and were formally welcomed on board Captain Moody's model of a proposed floating battery, Electric Telegraph Station, and light-ship. This novel invention we will attempt to describe, leaving the reader to form his own opinion as to its merits. The invention, being to a great extent an innovation, and so far, in the eyes of many, revolutionary, will be plentifully assailed and discussed; and all we propose is to provide the materials for the cheerful occupation of assault, if need be, and discussion.

Captain Moody is an old sailor who has been connected with some of our leading steam services, and he has in his retirement conceived, and at his own cost produced, this model, which many distinguished naval authorities have pronounced a wonderful and invaluable thing. He broached his scheme before the Inventors' Institute, of which he is a member, stating that the breakdown of the Atlantic Cable first set him thinking, the upshot of his thought being the conviction that floating telegraph ships would be necessary in order to ensure perfect telegraphic communication between ocean-parted countries. Practically, by means of his ships, he would divide a cable into short lengths—a plan which he contends would lessen the diameter and weight of the cable, and therefore reduce its cost as well as the expenses of laying. The cable would be sunk from the centre of the floating station, where the injurious effects of oscillation and friction would be reduced to a minimum. Here, of course, arises the essential question as to the safety of the curious structure. In answer to this the inventor says his vessel can be moored and abide in the most tumultuous of seas. The four equal projections or rays proceed from a circular deck in the centre, which is protected by iron bulwarks sloping outwards, By means of clearing valves and watertight compartments her buoyancy is said to be a certainty, and her capsizing or sinking an utter impossibility.

The vessel is constructed to deflect the waves as they strike, and the casting out of four anchors is relied upon as holding her against the worst tempest. A small model (twelve feet from ray to ray) was placed at Southend last year, and Lloyd's agent there reported that it rode out a heavy storm and tremendous sea without shipping a pint of

water, although it was fastened only by a very small piece of fisherman's bass. One of the party was a merchant captain of long experience, and he, though at first prejudiced against the vessel, bore testimony: "This thing would ride safely when everything else I have seen would founder." The model off Grays is thirty-nine feet from ray to ray. There is a light and unusually airy cabin below, twenty feet in diameter. The vessel draws about twelve inches of water, and if she were made eighty-five feet from ray to ray, which the inventor considers would be the proper dimensions for a full-sized telegraph station, the draught would be only two and a half feet. The strange boat sailed well, being fitted with a sliding keel and rudder, answered its helm to perfection, gave comparatively little motion in a swell, and stayed and weared as the helmsman required. The breeze, it should be added, was very light, but the skipper stated that the capacities of the craft would be still better brought out in a stiff wind.

The principle once admitted, there is hardly a limit to its application. Captain Moody's scheme includes—First, Floating batteries for harbours, rivers, and roadsteads, and other situations where they may aid established forts. This was proposed before the United Service Institution two years ago. Second, A mid-ocean floating station, where ships could call, and masters communicate with their owners, using it as a post office, or store-house, or rendezvous for aid of various kinds, including life-boats built on the same principle as the station itself. Third, A lighthouse fixed upon a tower, mast, or tripod, raised from the centre of gravity, which the inventor declares he can carry from sixty to one hundred feet high without detriment to the telegraphic department. These are the novel ideas which Captain Moody, at great personal expense, has embodied in his floating telegraph station in the Thames. He invites inspection and judgment according to strict deserts only, and is about to make a long voyage to prove his faith in the invention. The vessel is not by any means ungraceful in appearance.

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## NEW BOOKS.

PHYSICAL GEOGRAPHY *in relation to the prevailing Winds and Currents. By John Knox Laughton, M.A., F.R.A.S., etc. J. D. Potter*, 31, *Poultry, London.*

FROM the position which the author holds as Mathematical and Naval Instructor at the Royal Naval College, Portsmouth, it was quite natural to him to expect that such works as these, which being meant principally for seamen, should also be principally applicable to the ocean. He very naturally asks why meteorology and geography should not go hand in hand; why, in fact, the student of meteorology should be limited to the sea; why his subject should not be as extended as it really is in nature, and treats of all those particulars which

affect it on land, as others do at sea. There can be no doubt that he has reason on his side—and nature is as all powerful ashore as afloat, although her secrets are more intricate, more hidden, and therefore more difficult to get at in one than the other, and hence has arisen the anomaly which he has pointed out. Generalization was wanted, and it was supplied, but as he very truly observes, "we are at all times in too great a hurry to generalize," and the consequence is that many are too often misled; many too often generalize upon the few facts which form the amount of their observation.

The prevailing winds form his first chapter, which he considers the basins of the several seas, from whence he proceeds with the theoretical circulation of the atmosphere, and that vast and intricate subject, the formation of rain. We have then a treatise on the currents of the ocean, followed by the currents of the atmosphere and barometric pressure. Of course, hurricanes and revolving storms, which as the seaman has so much more to do with, we should have been glad to have seen treated more at large. But we commend the work to our nautical reader, who we may promise, cannot store his mind with too much information on all these subjects; for if, indeed, any one should have such information at his command, it is he who should have the sailor always in his thoughts.

THE WIND IN HIS CIRCUITS—*with an explanation of the origin and cause of circular storms and equinoctial gales, etc. By Lieut. R. H. Armit, R. N. J. D. Potter*, 31, *Poultry, London.*

THERE is no small amount of satisfaction in seeing our naval officers stepping aside from the beaten track of the theorist, and from simply being discontented with what he has before him, choosing to set aside all that he finds grating in his mind, looking into the subject from its commencement for himself, and starting *de novo* with his own theory. This we say is a feature well worthy of encouragement. Of course, we look at the opposing theories, and we select that which appears to us the most satisfactory, and adopt it accordingly. This is precisely the case with Captain J. Maury and Lieutenant Armit. The great object of this officer is to show how wrong is the theory of Captain Maury in reference to much that he would, if he could, satisfactorily explain with it—but he fails—evidently fails and from want of reason, we may add, in much that he has advanced.

The "wind in his circuits" is undoubtedly about as difficult a subject on which to treat (shall we say)—for in doing this, a theory must be adopted for dealing with it. Maury of course, who has been (we may say) our great pioneer, was eminently unsatisfactory in much of his theory; and we are not sorry to see him assailed in some of his favourite holds, especially his great "calm belts," his upper warm atmosphere, the line of perpetual snow, and others. Besides to us, Maury was too fond of generalizing. We all know the frail foundation that his wind charts were based on, and also that here and there our good friend would leave us to form our own conclusions from his own statements,

when he himself should have done it for us, as possessing far more information than he there has given.

It is due to Lieutenant Armit to observe, that he goes to the fountain head of his subject of information, tracing it in holy writ before the wind was, how it was generated, and how it was successively established. Doubtless, there is darkness through which to wade. But stepping from this, Lieutenant Armit appears to take his firm stand on electricity. He has been happily placed at Cape York, where he has already routed out a N.W. monsoon, and we cordially wish that he might some day succeed in achieving that observatory (meteorological of course) of which he speaks, on which he seems to have set his mind, and which would enable him to observe, as he says, "Nature—in all her glory."

It is gratifying to find so much determined devotion to the cause which he has so ably taken up, and we hope yet to welcome him among us as the leader of meteorologists:—such a leader is very much wanted. Assuredly he has produced an admirable work, original, and much more satisfactory than that which he assails; and we shall be glad to welcome him hereafter when enlarging and explaining satisfactorily to himself, those very abstruse conditions on larger diagrams than are contained in his limited work of the "Wind in his Circuits." As given somewhat to nautical matters, we have long been devoted to the cause which he has taken up. His little work we venture to believe will become a favourite in the hands of our meteorologists. And we hope to return to it for ourselves on some future occasion, when its numerous statements in the enormous subject on which it treats shall have had more time for our consideration.

We perceive that the Meteorological Office has published its first Quarterly Weather Report, with Pressure and Temperature Tables for 1869. This combines the observations of the seven observatories established by the Meteorological Office, before September, 1869.

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## To Correspondents.

D. Boeke, Parengan, Java.—Your letter of the 22nd May received. Shall duly appear.

J. P. Holdich.—In reply to J. P. Holdich, if he looks closely into the plans Nos. 3 and 4 of schooner rigged craft, in our June Number, he will soon perceive a very material difference between them,—the former Plate, Nos. 1 and 2, will be fouud in our February Number. In both of these Plates, the lower craft represent the American rig, while the upper ones shew our own, with slight American improvement. The paper referring to Nos. 3 and 4 was unfortunately placed in the preceding Number, while that referring to Nos. 1 and 2 is also in the February Number.

THE

# NAUTICAL MAGAZINE

AND

# NAVAL CHRONICLE.

SEPTEMBER, 1870.

## A Word to Ship-builders about Java Teak.

Sir,—Your complimentary notice at the end of my former article, inserted in your number for April, 1868, induces me to apply once more for a little space in your journal; although at this time on quite another subject.

Having for a period of about a year and a half, acted as overseer on the part of the Indian Naval Department at this establishment, destined to procure annually by far the greater part of the wood for ship-building purposes, that is required by the aforesaid Department; I intend to write down a few notes about that material, and the way it is obtained and treated up to its use. In the meantime, I would express a hope, that hereafter in your turn you will oblige me (and without doubt a great many more of your readers) by giving us some particulars about the Bengal teak, now-a-days so extensively used in Great Britain.

I make this request purposely, not only because even in these days of iron and steel, such enormous quantities of teak are continuously required for the backing of armour-plates, for the wooden skin of vessels built upon the so-called *combined system*, and for the internal arrangements of ships of every kind, but as it may be deemed interesting to get by way of comparison to the chief causes that tend to make Bengal teak more and more a marketable article, while the similar Java teak, at least outside this colony, is not so.

Among the great mass of treasures and sources of wealth that the beautiful isle of Java possesses, the precious building material named at the head of this article stands prominently forth. And since a considerable part of its soil is covered with teak forests, these, brought as they are now-a-days under the entire and regular management of the Dutch-Indian Government, which takes the utmost care for their

future reproduction, give a promise for a long time to come of a vast deal of profit.

The tract of country occupied by these forests, belonging for the greater part to Eastern Java, is most irregular and undulating. It consists mostly of hills—indeed mountains upwards of 2,500 feet high, intersected by deep and sometimes very steep ravines, and by many streams and rivulets, which during the dry or eastern monsoon are almost deprived of their water, but in the rainy months present quite another, and sometimes a very threatening aspect.

The kind of soil which the teak tree seems to prefer for its growth is of a very stony nature, and even on the steepest inclines, where almost every vestige of loose earth is continually washed off by the copious rains, and where scarcely any other traces of vegetation remain, it will flourish and attain large dimensions.

In this fact, of the difficulties inherent in the site of the trees, and the high transporting expense resulting therefrom, consists its price. Combined with this, the low standard of development which the native workmen and their usual implements have acquired up to this time, as well as the considerable price of manual labour, and of all those utensils and other things that must be imported from abroad; is the chief clue to the comparatively very expensive nature of the Java teak when ready for use and delivered at the sea-side towns.

The same cause concerns in a still higher degree the many other kinds of building woods (collectively called, in distinction from teak, *wild* woods, and for the greater part of a much inferior quality) that Java produces, and so much the more since those are to be found at the isles of Sumatra, Borneo, Celebes, and the Moluccas, all of which, notwithstanding the really high value of some of them, are very rarely exported from the place of their growth on account of the expense.

The Java teak tree reaches its full development in from eighty to a hundred years, and presents in general a very irregular form. The height of the trunk seldom exceeds seventy-five to a hundred feet, and the greatest diameter of the thickest part varies from three to four-and-a-half feet, so that a length of about eighty feet (available in one piece) and a rectangular breadth of about three and a quarter feet may be considered as the maximum dimensions of its available limbs.

Such large pieces are however very seldom in a sound condition. Some have by length of time surpassed the period of full development, but even a great many others, and sometimes comparatively speaking very young trees, are from the root upwards, more or less, either entirely hollow or heavily rent about the heart. This tendency to tear up and split forms one of the chief diseases of our teak; as very often the white ant and other insects nestle themselves in the cavities and make them wider and wider, while under the influence of dirt and moisture they frequently become the source of dry rot in its various and most dreaded forms. And again in some soils these rents are apt to fill with lime either of a soft and powdered or of a stony nature. The treacherous nature of this chief cause of deterioration can scarcely be overestimated. Indeed it requires a great deal of practical experi-

ence to ascertain the degree of soundness in large pieces of teak with any degree of certainty.

As in the teak forests of this country, the condition of the soil as regards lime is predominant, the so-called *lime teak* (Malay, *djattie kayover*), forms a special quality; and is easily to be distinguished from the three others, viz., *djattie kembang*, most sought by joiners on account of its fine structure, *djattie doring*, and *djattie singo*.

Unlike by far the chief part of vegetation in this climate, the teak tree does *not* belong to the class of *evergreens*. It loses its leaves towards the end of the rainy monsoon and remains for several months as bare as a tree in European winter. The leaves, which are very large, of a fine elliptical form, a beautiful dark green colour, and a rather soft structure, contain and give off when pressed a splendid purple dying matter, the secretion of which, as far as known to the present day, has never been traced on an extensive scale. It is mainly used as a kind of paint for woodwork, etc. It appears towards November but is invariably a short time afterwards almost totally destroyed again by a very voracious insect named the *teak caterpillar*. This insect during its short existence lives upon nothing but these leaves, till it is almost filled up with, and chiefly consists of the red dye itself, as one's white garments reveal but too distinctly. The remains of these insects are afterwards gathered by the natives and much cherished by them as well as by the Chinese, who in general like and consume all kinds of insects, reptiles, and other nasty animal stuff, that Java furnishes in such abundance. A new set of leaves immediately takes the place of those which were destroyed, and about March or April blossoms and flowers appear, giving a great abundance of little stony fruit, unserviceable as food but amply sufficient for the self-propagation of the species in this rich and fertile climate.

According to experience, that has given but too many striking instances of the fatal consequences resulting from the use of wood felled and applied in a living condition, the teak trees are entirely killed, one or two years before being cut down, by making a circular incision in the stem near the root. Within twenty-four hours after this has been done the leaves begin to drop and crumble away, while very soon afterwards the wood gets dried out in a sufficient measure to bring its specific gravity down to the usual standard of 0·8—0·9.

The cutting down of the tree and working it up into timber of various kinds and dimensions is done by native workmen, commonly called *wong wadoeng (axe men)*, after their single but quite effective instrument the *wadoeng*, consisting of a common hatchet with a loose iron chisel, fitted to be used according to its position within the handle as an axe or as a ship-builder's adze. As the nature of the stem prevents the use of rope to guide its direction in falling, and as the nature of the soil, the more or less irregular figure of the trunk, and the size of the circular cavity that almost always exists at the lowermost part of it, all of them exert their influence; it is only at the last moments that one can make sure of the way it will fall. It thus remains always an impossibility to know beforehand if a more or less considerable part

of the tree and its branches will be split and hopelessly rent when it reaches the ground with a tremendous fall.

The felled trees are one by one inspected and divided into several pieces, according to the kind of timber wanted and the most advantageous form available, thereby chiefly attending on the procuring of long straight beams and nice curves. The various pieces are afterwards lined and worked up by the wadoengs, either retaining their cylindrical figure by only taking off the bark, or being made into a more or less pure rectangular shape by cutting away the unripe outside part of the stem. They are at the same time as completely as possible deprived of their several defects, and if that is impossible they are rejected at once. The large entirely hollow trunks are employed for the fabrication of planks, staves for casks, wooden tiles, etc., and when the sound timber has been removed, all remnants that cannot be used as fuel are gathered into large heaps and burnt. The ashes of this residue serve as manure, and when one or two rainy monsoons have passed over, where at first sight seems a dreary wilderness, a new and in most cases sufficiently dense forest is seen to develop itself without external aid, on the site of the former. The transporting of all timber that cannot be sent down with the assistance of the existing rivulets, takes place in a rather primitive manner. The chief cause of this is the impossibility of making use with any chance of success of tramways, traction engines, travelling cranes, and other implements of modern industry. The traction power chiefly employed is that of bullocks and buffaloes; and often that of man. The lighter pieces are either slid along the ground or conveyed on the shoulders of native coolies by means of slings and short sticks; the larger pieces being hung to the axle of high-wheeled wooden trucks, or laid upon the iron axle of a vehicle of the same material. This consists in having two broad flanged wheels and a long arm fixed to the middle of the axle, which serves to move the empty car and to keep its charge in place when loaded. The roads made through the forests, as well as the bridges over various ditches and streams, are of a very simple nature and only available during the dry season. The timber being once collected outside the forest, its further transport is as far as possible by water; and as most Indian rivers are for the greater part of the year unfit for use, and during the rainy monsoon subject to very sudden and heavy floods or bonjirs, this way of transport is advantageous and cheap, although not free from risk and serious danger. When not immediately wanted, all the timber for ship-building purposes is stored under large sheds, to preserve it from the influence of the climate with its glowing sun and tremendous rain.

The work of felling the trees begins usually towards the middle of the wet season, by which method the dry monsoon may be utilised for its carriage, trying the quality, and measuring and stamping the timber.

In the fullest sense of the word teak may be called the universal timber for this country. Taking this fact into account, its many good and useful qualities can scarcely be overestimated. It is capable of all

the various manipulations that the carpenter, the joiner, the ship-builder, the bridge-maker, the moulder, etc., can find for it; since it can be treated in almost any way painted and varnished—employed under water and even in earth, and when used in a round and sufficiently dry condition, lasts for a very long time without any sensible decay. Although in many respects it may be deemed superior to common oak; it resembles that wood as to its chief virtues and possesses most of its good qualities, while exempt from many of its defects.

Particularly for ship-building it may be called indispensable, and for every part and particle of a Java built vessel from the keel upwards to the last article of furniture, it is employed throughout the whole process of construction with invariable success.

Although it may be a common mistake to suppose it entirely free from danger as regards dry rot, its destruction by white ants, and the rapid oxidation of iron bolts and nails; it cannot be denied that all these fertile sources of destruction are much less to be feared in teak-built ships than in those built of oak or pine.

The usual market price of Java teak differs very much at different times. But from forty to fifty guilders a cubic metre, may be considered as a fair average when delivered at one of the seaports of this island.

D. BOEKE,
*Naval Architect.*

Parengam, isle of Java,
May, 1870.
*To the Editor of the Nautical Magazine.*

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## OUR SEAMARKS.—No. II. FLOATING LIGHTS.

THE unwelcome cry of war on the continent of Europe has startled us with a harsh proclamation, ordering the removal of seamarks, the withdrawal of light-ships and the extinction of all fixed lights on the north coast of Germany! Truly the heart of the long-voyaging mariner must sink with despair on his return to his native shores, to find the welcome familiar direction and warning marks all vanished, the sea ways obliterated, and as night approaches a black darkness on the face of the waters across which those bright friendly rays of light were wont to stream from many a tower and ship! The masters of passing vessels look in vain to sight this or that light, or to discover this or that channel and navigate their vessels in fear and trembling. The commerce of all the improving towns situate on the river Elbe, Vistula and Weser is stayed, for by this sad necessity of war, the ports which were sought by the ships of the world are now impenetrably closed to them. Of course Germany in her own defence is justified in taking such steps. Probably we in England should give similar orders with regard to the seamarks at the entrances of rivers which lead to

our principal marts if we were threatened with an attack. But it is sad that such measures must be taken at all.

It is in such crises as these that we come to learn the true value and significance of seamarks. We see how much depends on them, and how the business of nations may be altogether thrown out by their displacement. The remarks we are now about to make concerning our floating lights may consequently have some additional interest attaching to them at this particular moment.

Many a time and oft have sailors hailed the lights from those stationary ships with joyful thankfulness. Around the shores of Old England they are plentifully scattered, close upon fifty of these floating lights being moored about those coasts. The Emerald Isle boasts only of eight, while our Scotch friends do not possess one. The reason of this is that a light-vessel is placed only where no foundation for a lighthouse exists, or where the dangers to be marked are continually changing, such as a shifting sand or a varying channel. As a rule our English coast is soft and friable. Our shores crumble away in the sea, and form vast sand beds, which being very susceptible to the action of tides and currents, are continually shifting and changing. The Scotch shores however are different. Many a "rocky ledge juts out into the sea," on which it is quite practicable to build a firm and enduring structure, and changes in the channels, the bottoms of which are mostly rock, may be wrought in the course of centuries, but certainly do not occur much more frequently. The Irish coast is similar, except on the eastern side where there are several extensive sand shoals, but the "melancholy ocean contiguous" to the Erin Isle beats mostly on hard and rugged rocks.

The English fleet of light-ships as we have said numbers nearly fifty, forty of which belong to the Trinity House, and the remainder to sundry local authorities who have the charge of marking the rivers Mersey and Humber, and one or two other less important localities. Where the navigation is intricate and difficult on account of the existence of numerous shoals, these vessels may be found pretty thickly clustered together. Off the coasts of Norfolk and Suffolk, at the Thames entrances and in the Downs they are plentiful, and are of incalculable value to passing vessels, defining the different watery thoroughfares as clearly as the lamp-posts now mark our streets.

It is now nearly 140 years since the first light-ship was placed at the Nore at the entrance of the Thames. But as we have advanced in civilization, and as our commerce has gradually developed into its present colossal proportions, so have we little by little added to the facilities for reaching our ports safely, until we can now boast of fifty light-ships, and doubtless we shall continue to extend those facilities.

Probably the majority of our readers are acquainted with many of the particulars we shall state. But for the benefit of a minority which may not be so well informed, we feel bound to enter fully into detail trusting that they may not be unwelcome even to the *cognoscenti* of our readers.

Light-vessels are generally of about 150 to 180 tons burden. They

can hardly be called pretty looking craft. But it must be borne in mind that their function is to be useful and not ornamental. Both ends of the vessel are rounded to adapt her to her stationary position, and in her whole construction and design strength is aimed at rather than beauty. All light-ships are coloured red to give them a distinctive character, and to make them conspicuous on the wide waste of waters. Their names in large white letters are painted on both their sides; they are furnished with very little rigging and their short stumpy masts with large iron wicker cages on the top, are designed more to bear lanterns than to be of service in navigation. Their object is to remain in one place, and consequently it is necessary to make many exactly opposite provisions for them to those which would be required for vessels, the principal object of which is locomotion. The material of which the vessels are mostly made is wood Iron has been tried, but it was found that after being at the station a short time an iron vessel got very foul and corroded, whereas a wooden vessel can be kept at her station for seven years, before she wants cleaning of barnacles, mussels, and large weeds usually found to cover the bottoms of even those light-ships, when they are brought in after their period of service.

For seven long years each vessel has to withstand the action of the elements, to roll, to pitch and toss through every storm and tempest, by which they are assailed in the long course of seven winters. In the calm and smooth weather of summer, it might almost seem as if the light-vessel experienced something of the *dolce far niente*. That her very presence is a contradiction to such a supposition, for her chief business is to remain in one place, and in effect to say to passing ships, "Behold me," or like the Duke's motto, "I am here." Of course it is easy enough for these vessels to ride securely at their stations in fine weather, but it is a different matter altogether when the sea rages, and the wind blusters, and all vessels are tossed about like playthings by the furious waves. And yet they do hold on to the ground in a marvellous way. It is very seldom indeed that an English light-ship breaks adrift, perhaps once in ten years. A month or two back a French light-vessel (the *Ruytingen*) broke from her moorings and went cruising about down channel, to the astonishment of a great many sailors. The Trinity House Authorities soon received intelligence of this, and immediately sent off one of their steamers in pursuit, which very soon captured the truant and towed her back to her station. The reason such casualties are so very rare among our light-ships, is that every possible precaution is taken to ensure their being kept in their places. In most cases one heavy anchor in the shape of a mushroom, and weighing thirty-two cwt., is the main holdfast. The soft bed on which it usually falls, and the action of tides and currents, very often completely cover it up, and then there is some actual hold on the ground. But if it fall on a hard bottom, the ship has to rely wholly on the mere weight of her mushroom and cable for keeping in one position. The cable, however, is of very great service in this respect. Each vessel is supplied with from two to three hundred fathoms

(according to the depth of water in which she is moored) of chain cable strong enough to hold three or four such ships. The links of this cable are one and a half inches in diameter, and about seven inches long, and extraordinary qualifications are required of them before they can be admitted into honourable service as a light-vessel's cable. The strength of each link is tested, and must be able to bear a weight of thirty tons, and then it has to undergo an immense quantity of hammering. If each link come out of the ordeal satisfactorily, the cable is dignified with the name of "patent, proved shortlinked chain one and a half inch iron," and is then fit to be used for light-ships. Some of the vessels are moored by a length of this chain, having at each end a mushroom, to the centre of which ground chain a bridle or veering cable from the light-ship is attached by means of a swivel and ring. In order to avoid entanglements in the cable as vessels rise and fall in rough weather, or swing round with the tide, there is a swivel placed at every fifteen fathoms of the chain. But in a strong gale of wind and a high sea, something more is required than sheer weight and strength to keep a light-ship at her station. It is not to be supposed that in calm weather a vessel moored in eight or ten fathoms water has all her two hundred or more fathoms of cable out. It is in rough weather only that she makes use of her large stock. Then she requires plenty of scope to enable her to ride over the crests of huge waves. A large quantity of the chain is allowed to lie at the bottom, much more indeed than she absolutely wants to rise to the summit of the highest wave, so in all her rolling and pitching the cable is never taut between herself and the mushroom, the weight of the surplus chain acting as a drag and keeping her from going far from her proper position, so that she never strains or jerks at the mushroom. It requires hard work from the crew, and the exercise of much judgment by the officers in charge to ensure the vessel riding in safety through severe gales. The *Seven Stones* light-vessel, moored in forty fathoms water, has many times in bad weather had out close upon three hundred fathoms of cable—a quarter of a mile or so—to enable her to live through the unusually heavy seas which she experiences. In case a vessel should break adrift, she at once lets go one of her best bower anchors in the hope of pulling her up, shows a different light, makes signals of distress, to tell passing ships she is a runaway, and as soon as the fact is known on shore, a Trinity steamer pursues her and brings her back with as little loss of time as possible, or else another vessel from the nearest depot is at once taken out to be moored temporarily in her place. Spare light-vessels are always kept in readiness at London, Yarmouth, and Milford, to meet such a casualty as this.

It may reasonably be supposed that an important part of a light-ship's duty is to shew a light at night, and a few particulars concerning the mode of so doing will probably be interesting. For the pitching and rolling motion to which such a vessel is subject, is not altogether favourable for shewing a constantly bright and reliable light. In our last paper we referred to the Dioptric and Catoptric systems of

lighting for lighthouse illumination, but in light-vessels delicate, optical adjustments are totally impossible, and the catoptric system with lamps and reflectors can alone be made use of. A large lantern is made to fit round the mast, and to slide up and down it, at night being hoisted up to the top, and by day lowered down to the deck. Inside the lantern is a circular framework on which are fitted a number of argand lamps hung on gimbal work, so that their own weight keeps them constantly in a vertical position, and ensures a regular supply of oil. Each lamp is placed in a twelve-inch parabolic reflector, and the number of lamps is regulated according to the power of light required. By these arrangements, a strong and compact body of light is produced and sent out on to the sea all round. For purposes of distinction there are sundry modes of varying the characters of the lights; some have three lights; one on each mast, some two, and others only one. Further variety is also obtained by the use of coloured glass—red or green—and by use of clockwork machinery to make the light revolving. The changes that may be made by combinations of these varieties are very numerous, and enable almost every light-ship to have a distinctive character of its own. The average distance at which the lights can be seen is about eight to ten miles in clear weather. This comparatively short distance of visibility is on account of the necessarily low elevation of the lights. In foggy weather, when the lights are liable to be obscured, a gong is sounded continuously on board, which kind of fog signal is generally known among sailors as peculiar to a light-ship.

The vessels are mostly named after the dangers they mark, or the channels they are intended to indicate. Twenty-four miles off the Lincolnshire coast is the Outer Dowsing shoal, and close by it rides the Outer Dowsing light-vessel, exposed to the full force of North-easterly gales and everything else that is unpleasant in the cold North Sea. The Newarp and several other vessels on the East coast, by reason of the strong set of the tides near them are sometimes run into by passing ships. The light-ship which marks the Galloper sand twenty-two miles off the Essex coast is always in a state of unpleasant agitation. The name of the sand is said to be derived from the short, galloping waves that follow each other in rapid succession over the sand. The Seven Stones light-ship moored between the Scilly Islands and the Land's End has frequently very bad times, she being exposed to the large waves which ever roll in from the Atlantic with great velocity and force and break with violence on anything that impedes them. To meet the special exigencies of this situation, this light-ship is supplied with above three hundred fathoms of cable, a mushroom anchor of forty cwt., and a much larger crew than ordinary vessels of her class. Most of the light-vessels round the coast have at times experienced the worst of weather, and many a tale could be told by the crews of fearful nights of storm and tempest.

The Light-vessel service in England gives employment to about five hundred men. The crew of each vessel consists of a master, a mate, and nine seamen. Seven only of the eleven are on board at a time, four being on shore. The master and mate have alternate months

ashore, the seamen two months afloat and one ashore; and while the men are on shore they are required to make themselves generally useful at the Trinity House Depot in whatever district they may be. In fair weather life on board a light-ship is by no means exciting. There are certain routine duties to be performed daily, but a great part of the day the men are thrown upon their own resources for amusement. By means however of a small library on board, the books of which circulate from vessel to vessel, and by employing themselves in making shoes, toys, etc., for sale when they go on shore, they manage to get through their surplus time with some degree of satisfaction. Yet in foul weather things are very different, and every one on board is on the alert: keen eyes look eagerly across the angry waters to see if any vessels are in danger, so that warning signals may be made by rocket or gun, all hands perhaps are summoned to attend to the cable, and there is a general commotion, which may fairly be called orderly, for each man knows his duty and performs his part without jostling or hindering his neighbour. We might tell of many acts of bravery on the part of these lights-men; how in the most terrific storms they have kept watch on deck—even though lashed to the masts—and maintained a good light; and what heroic endeavours have been made by them to save life in cases of shipwreck; and although they may not be a very intelligent class of men, yet they possess qualifications for performing duties which have for their object the safety of the mariner and the welfare of humanity.

The pay of the seamen is at the rate of £2 17s. 6d. per month, with an increase for length of service and the prospect of promotion to the ranks of mate and master, the last named receiving eighty pounds a year. Besides this very fair pay they have other advantages in this service. They are provisioned on board, and are allowed eighteenpence a day for victualling when on shore; they are supplied with medical attendance when necessary, are furnished with a suit of uniform clothes annually, and when past work are allowed a pension allowance proportionate to their length of service.

At times the lightsmen have to receive visitors. Indeed ship-wrecked crews occasionally find a warm welcome from their mates on the light-ship, and are boarded and lodged until an opportunity occurs for sending them ashore. On dark nights large numbers of birds which have made too long a journey to sea and are overtaken by the night, are attracted by the lights; some will fall on the deck exhausted with their long sustained flight; others with perhaps as a last effort of strength have come flying towards the light, and dash themselves against the lantern glass with great force. One old master of a light-ship related to the author of these lines that in his vessel on very dark nights the birds have come most plentifully tired from sea, but that on the appearance of a single star most of them have flown away, being then enabled to find their way to land. Must this be set down as the rambling talk of some "ancient mariner." At any rate it was received "*cum grano salis*." The effect of the appearance of a star in enabling the bird to regulate its flight was not familiar to me,

although it might have been to the bird. It is said that the flight of the carrier pigeon is not continued after dark, so that he at all events would remain on board until daylight enabled him to resume his flight, a power which according to the mariner is not required as long as they have a star to guide them.

The Trinity steamers pay monthly visits to all the light-vessels, and make the necessary changes in the crews, placing stores on board, water, provisions, oil, etc. Sometimes when least expected a committee of the Elder Brethren of the Trinity House will make their appearance to see that everything is in good order, but the service is generally so well carried on that occasions for finding fault are very rare.

We have come to the end of our observations concerning our floating lights, and can only add in conclusion that England has reason to rejoice that this important part of her coast-lighting system is so successfully and efficiently carried out.

[On the subject of birds alighting on the decks or rigging of ships at sea, we have no information on the peculiarity mentioned by our correspondent of their being enabled to shape their course for land by starlight. Such a qualification may be true; but we should be glad of a confirmation of the statement of the old light-keeper alluded to, and in fact a word on the same subject from any other. Of course the physical powers of the bird to continue the flight must be admitted, but the want of power for this we apprehend to be the principal cause of their taking refuge in any vessel whatever. We have stated a case or two lately in a paper on Bermuda by an esteemed correspondent, where they have sought refuge in a most exhausted condition, and have allowed themselves to be easily taken. But we doubt the author of it having ever heard the case as stated by our present correspondent. The subject however is one of considerable interest, and we should be thankful for any authenticated cases where birds have been captured at sea with a view especially to the position of the ship, that a safe conclusion may be arrived at as to her distance from the nearest land.—ED. *N.M.*]

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## THE SUEZ CANAL CONSIDERED.

*(Concluded from page 427.)*

NOTWITHSTANDING the difficulties necessary to be overcome in order to open the Canal across the isthmus of Suez, there appears no reasonable doubt as to the result, nor of the favourable effects which it must produce hereafter.

Let us look into the advantages which this new route for commerce will bring. Let us examine in the first place if it diminishes the distances between the seas of Europe, and those of Asia and India,

and also if it will produce an economy in time and money; and in continuation if it will not be to the interest of European merchants to substitute their sailing vessels, with such others as give certain results and regularity in their voyages. If we had to judge only from the enormous reduction of the distances from a port of Europe to any part of India, the question would soon be settled. Here is a table from which these differences may be deduced, in most cases shewing less than half the distance, or that only as far as the Cape of Good Hope.

DISTANCES TO BOMBAY.

| Ports of Europe and America. | By Atlantic. | By Suez Canal | Difference. |
|---|---|---|---|
| Constantinople .. .. .. | 6,100 | 1,800 | 4,300 |
| Malta .. .. .. .. .. | 5,840 | 2,062 | 3,778 |
| Trieste .. .. .. .. .. | 5,960 | 2,340 | 3,620 |
| Marseilles .. .. .. .. | 5,650 | 2,374 | 3,276 |
| Cadiz .. .. .. .. .. | 5,200 | 2,224 | 2,976 |
| Lisbon .. .. .. .. .. | 5,350 | 2,500 | 2,850 |
| Bordeaux .. .. .. .. | 5,650 | 2,800 | 2,850 |
| Havre .. .. .. .. .. | 5,800 | 2,824 | 2,976 |
| London .. .. .. .. .. | 5,950 | 3,100 | 2,850 |
| Liverpool .. .. .. .. | 5,900 | 3,050 | 2,850 |
| Amsterdam .. .. .. .. | 5,950 | 3,100 | 2,850 |
| St. Petersburgh .. .. .. | 6,570 | 3,700 | 2,870 |
| New York .. .. .. .. | 6,200 | 3,761 | 2,439 |
| New Orleans .. .. .. | 6,450 | 3,724 | 2,726 |

But it is quite unnecessary to depend only on the advantage afforded by these figures. Circumstances beyond these, render it very difficult for sailing vessels to use the Canal. By investigations made by competent persons it has been concluded that in certain seasons of the year for sailing vessels, especially those bound to ports south of Ceylon, it would be more advantageous for them to follow the usual route of the Cape of Good Hope.

In fact the prevailing winds of the Mediterranean, or Red Sea, favourable from the month of March until the end of October for the navigation from Europe to the East, are contrary or unfavourable during the winter; and inversely the return voyages during the same months would be difficult from the same reason. The prevailing winds of the Mediterranean during this period are from west and N.W.; which are favourable to sailing vessels going to Port Said. And in the Red Sea, the winds from N.W. and N.E. prevailing, the navigation would be much facilitated by this, until leaving the Strait of Babel Mandeb. In the Gulf of Aden, the S.W. monsoon is found, or else that of the N.E., and with both a vessel may reach Ceylon or Singapore. Here is evidence of the advantage: but for the return

voyage there are difficulties. In this case, the sailing vessel will nearly always have the wind ahead, the navigation being laborious on coasts of closed seas, such as the Red Sea is, and the shores of which besides abound in reefs. The advantage should not be reckoned on in these return voyages. What we want to gain is time, the shortest possible course. For commerce time is money, because from the arrival of a cargo at a port, those expenses are terminated, and the merchandize is disposed of.

By studying the winds which prevail in the different zones traversed by either route, we are enabled to determine the probable duration of the voyage by the Cape, and by Suez in different seasons by sailing vessels, or by those with auxiliary machinery. As to steamers they have their track by the Canal of Suez there is no doubt of that. It is also verified, that the mean length of a voyage by the Cape of Good Hope, taking any point of England for the departure, is in summer 106 to 108 days to Ceylon, 108 to 115 to Singapore, and 102 to the Strait of Sunda.

Considering the system of monsoons and the times of the year in which they prevail, the duration of the same voyage by the Suez route would be fifty-five days to Ceylon, seventy to Singapore, and seventy-seven to the Strait of Sunda.

But there is still to be considered that the navigation by the Cape presents no extraordinary expense to vessels, while that by the Suez Canal actually costs per centage some ten francs per ton, and per passenger. If for instance we take a barque of 650 tons, the expenses of the transit would be 24,700 reals. The daily expense of a vessel of this capacity may be calculated at 1,360 reals; so that the sum of 24,600 to 26,000 would nearly represent nineteen days of navigation. The result is that it is necessary to add these nineteen days to the mean duration of the voyage by Suez in order to compare it with that of the Cape. This process reduces the advantage of distance during the season of summer to thirty-one days for Ceylon, for Singapore eighteen, and only five for the Strait of Sunda.

What may be allowed as being advantageous in adopting the Canal of Suez over that of the Cape, would be whenever the length of this would be less than nineteen days.

During the winter season, the differences are less for vessels from Europe to India or China, and are occasioned by the monsoons being unfavourable in the Gulf of Oman, and in the winds of the Red Sea being contrary, and rendering the navigation difficult. So that deducting the nineteen days which represent the advantage of the Canal, the difference from November to March would give about ten days for sailing vessels going from England to Ceylon by Suez, and nothing or nearly so for those which go to Java. These last would not have the least interest in adopting the Canal, not even the absolute length of the passage.

Such are the general considerations concerning the navigation of sailing vessels on the voyage to India, China, and Australia. In the return voyage during the winter the passage of the Canal would be

most advantageous; but in the summer they would be entirely against them. The evidence is irresistible. In spite of the difference between the absolute distances, the vessels which come from Ceylon would scarcely gain seven days, and those from Java only nineteen. If from this be deducted the duties of the Canal passage, which as we have said are equal to nineteen days of navigation, it will be seen, that for Java and the Archipelago, they give the same result both ways; and for Ceylon the loss by using Suez is equivalent to eleven days of navigation, or rather 14,960 reals or 15,000 in round numbers. This loss may be made up for with the advantage of arriving in port seven days sooner at the Cape: and assuredly the same in the majority of cases.

But taking the question under the point of view of absolute sail only, it is interesting to consider it under that of auxiliary steam, which changes the case materially. And going through the same calculations as above, it results that a vessel of 1,600 tons under auxiliary steam would make her voyage from England by the Cape of Good Hope in seventy-seven days, seventy-five to Singapore, and seventy-one to the Strait of Sunda. By Suez she would make the same voyage in forty-three days to Ceylon, in fifty-two to Singapore, and in fifty-four to the Strait of Sunda and the Archipelago. The result would then be a benefit by thirty-four days to Ceylon, twenty-two days to the Strait of Sunda during the summer. As for these like those for sail, there is the reduction of the days belonging to the passage of the Canal. Giving a cypher to the calculation, and considering it in round numbers 4,000 reals daily of expenses for the auxiliary steam, and 60,800 reals at ten francs per ton in the supposed capacity of 1,600 tons, it may be considered that this would be equivalent to about sixteen days of navigation.

That is, that the auxiliary steamer taken for comparison, would benefit by the Suez route, always when she would gain sixteen days of navigation. In summer time as already seen she would gain with this deduction; eighteen days for Ceylon, six days for Singapore, and one for the Strait of Sunda and the Archipelago. It must be noted that the days are considered as expenses, and that in all cases, the vessel will always gain sixteen days, and enable the merchant to dispose much sooner of his freight.

In the winter season, although the difference would be less, it is sufficiently great when touching in India. In the return voyages after the deductions are made, the advantage is still evident of ten days for Ceylon, and six days for Singapore.

In fact reckoning all the unfavourable circumstances, the passage by Suez should always be preferred for traffic with the extreme east, and those sailing vessels should always be excepted from this (whether sailing only or auxiliary) whose proceeding or destination would be more distant than the Strait of Sunda, Australia, or New Zealand.

Then it appears that the navigation by sail only at certain times is difficult in the Red Sea. Its coasts are but little frequented, and very imperfectly known. The winds of it endure for several months

consecutively, and if favourable to the voyage one way are against it in the other. Navigation by sail would encounter serious difficulties in the Red Sea, and many seamen prefer the route by the Cape. But all inconveniences vanish when treating of auxiliary steam, as we may show in a few words.

The question of the transformation of the Mercantile Marine is one to be considered in a special point of view. From 1856 it has been predicted by the special commission on the opening of the Canal, that merchants would adopt auxiliary steam for it. A commission nominated by the king of Holland, has published an argument which it is necessary to keep before us. "It is certain," it says, "that the opening of the Canal will make a material difference to those vessels from the shores of the Mediterranean, which trade with ports of the extreme east by steamers or by auxiliary steam." Thus it is that Cadiz, Barcelona, Marseilles, Trieste, are distant only thirty-five to forty-five days from Ceylon; Germany, France, and Italy, would cease to be tributaries to Holland and England for the products of India, unless they bring into the question more efficacious means of action. And no other means can be conceived than using auxiliary steam by which sea risk is lessened. And if they have not absolute security of passage, they are not put out of their way by calms and contrary light winds.

The force of circumstances then, the interests of the nations of the N.E. of Europe, and also England, to whose commerce with the Philippine Islands this Canal will open much more than any part of the peninsula, there can be no doubt, that the immediate consequence of opening the Canal will be of the greatest advantage; and that nearly all their Asiatic possessions will benefit by this route. We know the objections against this undertaking. It has been said that the strong winds of the Red Sea against the course of vessels, will also render the use of machinery of no avail. This objection cannot be adopted seriously, more especially with vessels of an increased size and horse power. The objection cannot hold good against vessels of an increased tonnage, for in proportion as the vessels increase the expenses of machinery decrease! Therefore it is to the interest of parties to build them so large that they will meet all such objections. The more reasonable objection is that freight being higher in vessels of mixed power of steam and sail, their freights will run higher and consequently the benefit is lost.

Let us carefully examine this question. We will take the figures of the Dutch commission, rectified by the experience of eight years; and here is a statement of comparative results.

We will also for the mean voyage take that to any of the ports of England as common, to the rest for the commerce to all the countries of the north, and N.W. of Europe, which are the most interested in the results of this calculation. The shores of the Mediterranean has its road traced out for it, by the isthmus, and reducing the distances, the following calculation may be applied from any port whatever of Europe to any other of the east. The figures are according to the Dutch commission of which we have already spoken.

*Expenses of a sailing vessel of* 650 *tons with* 800 *tons cargo.*

| | Reals. |
|---|---|
| Price of the ship ..... | 1,280,000 |
| Interest of capital at six per cent. per annum ..... | 76,800 |
| Loss at ten per cent..... | 128,000 |
| Interest on the value of the cargo of 800 tons estimated at 3,200 reals per ton, are 2,560,000 reals, at six per cent..... | 153,600 |
| Pay and maintenance of crew ..... ..... | 80,000 |
| Provisions ..... | 50,000 |
| Total for one year ..... | 489,200 |
| And for one day in round numbers ..... | 1,340 |

*Auxiliary steam and sail.*

| | |
|---|---|
| Tonnage of 1,600, carrying 2,000 tons of cargo and with machinery of 200 horse power, the price of it | 6,000,000 |
| Interest of capital ..... | 360,000 |
| Loss at ten per cent..... | 420,000 |
| Interest on the value of the cargo of 2,000 tons at 3,200 reals per ton, are 6,400,000 reals, at six per cent. | 384,000 |
| Pay and provisioning of crew ..... | 400,000 |
| Total for one year ..... | 1,564,000 |
| And per day in round numbers ..... | 4,285 |

The expense of policy is not included here, taking it for granted that it is the same for one day as another. And as to the sum of 3,200 reals the ton of merchandize, it is that which has been adopted by the aforesaid Dutch commission.

Hence we may arrive at the conclusion that a sailing vessel expends 1340 reals per day of navigation to transport 800 tons of merchandize, and an auxiliary steam with sail 4285 reals to transport 2000 tons. In this sum of 4285 reals is not included the price of coal. It is easy therefore to calculate the cost of transferring a ton of merchandize for any given distance.

Let us take the passage from England to Ceylon by the Suez canal, admitting the same for a mean of forty-five days for a vessel of auxiliary steam and sail, and sixty for a sailing vessel; and the result will be that the sailing vessel will have cost in her passage of sixty days 81,600 reals, which spread over 800 tons will give the price of 102 reals per ton.

That the auxiliary steam and sail in forty-five days should cost the sum of 154,400 reals may be; but how has she done with her machinery at less than ten days, which consumes on a mean some twenty tons of coal every day. She would besides have consumed an

additional 200 tons of coal. And setting down the mean value of each ton of this article at 100 reals, an additional cost of 20,000 reals results; and therefore the complete cost of the voyage of the auxiliary steam and sail, would be 214,400 reals or twenty per cent., all but five reals for the advantage of the sailing vessel. Although under certain determined circumstances, this advantage might be greater in favour of the sailing vessel it may yet be uncertain. To receive the merchandize within fifteen days of anticipation, and to be sure of its arrival with a slight error of days is an abundant compensation for the difference of some dollars, more especially when rich cargoes are in question, such as those which come from the east.

The most complete answer to these queries is that of the Dutch commission, which shews the absolute necessity of this transit.

England has long since understood this question, and it is easy to prove it. In 1841 she built 1,140 sailing vessels measuring together 160,000 tons; and also forty-eight steam vessels of 11,500 tons. In 1860 she has only built 820 sailing vessels amounting to the same tonnage of 160,000: but at the same time 200 steamers have left her building yards, or vessels of steam and sail altogether of 54,000 tons. This is a diminution in number and an increase in the capacity of sailing vessels. And for the steam and sail there is not only increase in number but also in tonnage. A similar progress of increase has occurred to this date. At the present time, as many vessels of steam and sail are built in English yards as sailing vessels. And there can be no doubt that the spirited foresight of the English and the prospect of the canal, has exercised no small weight in the matter.

But we will leave these tedious calculations which no doubt have tired the reader. Our only anxiety was to throw light on questions so important to commerce and navigation in general. And let us conclude our study of the question with some few general reflections on the probable results of this grand enterprise, before we conclude our narrative of the events of our voyage to Suez.

We have shown incontestably the advantage of the Suez Canal for auxiliary steam and sail, in the great route between Europe and India and China, and especially from England. But at the same time the advantage is no less for those nations which occupy the shores of the Mediterranean. Spain, whose traffic with the extreme east is in these days limited to a few sailing vessels, which transport the produce of the soil from Cadiz and Barcelona to the Philippine islands, appears at no distant day will have to increase her ships in order to profit by the advantages which the new route opens to her. Of course she grounds them on the axiom that experience every day teaches her, that as the traffic increases the greater are the facilities which it gives, as demonstrated by the post office, the electric telegraphs, and railways.

France more interested than any other country in adopting this route will follow or anticipate England in the transformation of her mercantile marine. Greece with her mercantile spirit, and the enterprising character of her people, will not be left behind. She has no very distant navigation; but she has invaded all the ports of the

Archipelago, the coasts of Asia Minor, and ports of the Black Sea, of which Constantinople and Odessa are witnesses.

Greece, a country with no produce and but little industry, presents no field for the enterprise of her sons, for which reason they emigrate by hundreds, and establish themselves in other cities. Can we believe that when the Suez Canal places them in immediate communication with the Persian Gulf, that they will not rush from their country, surpassing the whole commerce of the east, merely a few leagues from their own shores? The same must happen to Italy, the population of which is much given to all kinds of maritime enterprise. Greece and Italy, those important centres of consumption and tributaries in these days to the mariners of the north will hasten direct to surfeit themselves in the garners of produce. The sugars, the coffees, the spices, the choice exotic woods, the ivory, the wools, iron, and a thousand other articles which they now receive through the medium of England will form their trade. We cannot but suppose that so entire a change must enormously benefit those countries now deprived of industry. At present they obtain these articles at very considerable prices; hereafter their own interests will amply verify and place on a solid foundation the prosperity of these places.

Under whatever aspect the question may be considered, there will be benefits without number for general commerce at all times, and there will also be abundance of time to make sufficient remuneration for the proprietors, the founders, and the shareholders of this maritime canal.

It being designed by M. Lesseps, and the directors of the company, that on the 2nd of December the *Berenguela* should pass Ismailia in company with the Russian frigate *Kertha*, the guns of these vessels were landed in order that they might not draw more than 5·8 metres of water at the utmost: this draft having been agreed on as that with which they might pass through with safety. This done we passed without any obstacle, entering the canal at ten in the morning of that day, followed by the Prussian frigate about a mile from us, and piloted by the commandant of the company, Mr. Pointel, who graciously performed this important service. At three of the afternoon we found ourselves in the Gare of Kantara in the 45th kilometre with the above mentioned frigate, having come this distance without any accident whatever.

This part of the canal excepting a small turning at the entrance lies in a direct line due south, and is navigated with much facility, taking great care in the steerage of the vessel so as not to run over the buoys. These buoys are placed on either side to indicate the channel, for they show the width of it, which throughout as far as Suez, does not measure more than twenty-two metres, the whole distance from side to side not measuring more than 100 metres.

During the whole of this passage, as far as Kantara, the Lake Menzaleh is crossed, which part of Asia has evaporated entirely since the drags and the formation of the banks interrupted the continuity of the waters of it. But it is now converted into a huge natural lake

similar to those of the Guadalquivir. This immense savannah of water, Lake Menzaleh, is always well stocked with flamingoes, the monotonous cry of which is all that breaks the silence of these extensive solitudes.

Between the 13th and 14th kilometre, which like the rest are marked with pyramids of stone, is the small encampment called Ras-el-Ech to the right, and at the extremity of an islet lost in the midst of the waters of Lake Menzaleh, and is the only point established on terra firma between Port Said and Kantara: its height above the level of the sea is not more than sixty-four centimetres. It has been the centre of the direction of works between the two towns.

There are some stores, a provisional hospital, an agency of the post and telegraph offices, some dwellings, and a large deposit of fresh water supplied by the tubing coming down from Ismailia. In this part of the canal there have been formidable difficulties.

In the 39th kilometre is another little camp called "Le Cap," situated on the Asiatic side, in which there is nothing particular: it is three metres above the mean level of the sea, and about a kilometre in extent. The lagoons of Menzaleh terminate at the 43rd kilometre near Kantara. Kantara called Punta del Tesoro, is the place of transit of all the caravans and travellers between Egypt and Syria. Kantara was a small encampment, where the Arabs of the desert used to come to wait for the arrival of travellers to buy and sell merchandize. At present this Arabian encampment is situated at 1800 metres of the canal on the Asiatic side of it. The encampments of the company form a town which crosses the road of Siria. A chapel is seen here, as well as a mosque, and an hospital. There are two hotels of respectable appearance in front of the landing on the African shore, and the offices of the canal, transport, etc. A little beyond and on the other part is a kind of Greek village, and opposite kilometre 45th is a large gare 100 metres wide, in order that vessels may pass each other in opposite directions, and by which the *Berenguela* without any kind of difficulty secured on the Arabian side passed a Norwegian frigate of her own size.

Here on account of the drags for deepening we were obliged to delay until the 4th, when we continued on for Ismailia.

On leaving Kantara the ground becomes higher, the sides of the canal are relatively higher, and some lifting machines are seen at work. These powerful machines have for their object as their name implies to lift the produce of the drags, so as to place it on the banks above seven metres high.

From kilometre No. 49 to No. 55 the ground is not so high, and Lake Ballah is reached. To the right are seen some runs; and afterwards a piece of ground called the *Yeseras*, the gypsum works, which it produces of very good quality, having been of much service in the works.

The next place we reach is *Ferdan* situated on the African shore, between Lake Ballah and Raz-el-Moyah, at kilometre No. 63, the height of which is six metres above the level of the sea.

For five or six kilometres the sides of the canal continue becoming higher similar to the land which forms them. The canal then crosses the site of *Guisr:* this is composed of a series of small mounds which begin at *Ferdan* continuing as far as Lake Timsah, and their greatest height is about sixteen metres above the level of the water. This is a point at which the canal does not measure above sixty metres across; but its depth is the same, and this depth is not more than twenty-two metres as above-mentioned.

In the 71st kilometre is seen the town of Guisr, the level of which is attained by means of a ladder of wood. It contains the dwellings of the workmen, their workshops, a catholic chapel called *Nuestra Senora del Desierto*, a small mosque, the dwelling house of the engineer of the works, and an hospital.

Following the canal we come next to an immense open space from Lake Timsah, or the Lake of Crocodiles, as it disembogues here. It was on the 18th November, 1862, when the waters of the Mediterranean penetrated this extensive depression of territory, nearly always dry, and requiring eighty-four million of cubic metres of water to fill it. The bitter lakes have taken sixteen hundreds of cubic metres to fill them. The filling of Lake Timsah occupied three months: its banks have received the soil obtained from the drags, and these have been worked in a manner to preserve an internal port of six to eight metres of depth and sixty hectares of superficies formed across a canal availing itself of it.

Ismailia is now before us, of which city it is proposed to give some little account, as we have done of Port Said. On entering Lake Timsah the southern part of the city is soon discovered, containing the dwellings of the principal functionaries. Among the most remarkable are the governor's palace, the residence of the chief engineer, that of the Director General of the works, Mr. Voisin Bey; those of Senores Borel and Lavallay, and the chalet of M. de Lesseps. All these residences form one row, connected on a stone flooring: they are extensively and elegantly furnished, ornamented with handsome wooden carvings, and all the houses are fronted with neat gardens.

We remained in lake Timsah at anchor off Ismailia observing the operations necessary for removing the only obstacle to our passage through the canal; which was neither more nor less, than a rock in the middle of Serapeum, with only four metres of depth over it. This had been discovered while the canal was being inaugurated; situated accidentally between two of the soundings at twenty metres apart. Work was continually going forward to remove both, with the explosion of gunpowder, as well as with drags, whenever it was possible.

Meanwhile the *Berenguela* landed her principal stores in vessels provided by the Company. Five metres and three decimetres would reduce her to the mean draught. But by their operations at Serapeum they had obtained this depth, guaranteeing us the same throughout; and our effects had been forwarded in the Company's vessels to Suez, by the fresh water canal. The attentions of M. Lesseps were most unremitting to the captain and officers of the ships during our stay at

Ismailia, and no less so were those of the officers of the Company and their families; and these attentions were duly acknowledged by our commandant, who entertained M. Lesseps and his officers and their families, with a handsome banquet on the evening of the 24th, followed by a ball which was happily attended by all the cordiality that the circumstances inspired.

On the 15th we recommenced our movements in the canal, prepared and piloted by Mr. Victor Possel, Commandant of the Marine, who like Mr. Pointel would confide to no one but himself this important office.

At the kilometre No. 85 it was, where we found the dyke where the works were executed. From this kilometre the ground occasionally rises nine metres above the level of the Mediterranean, in a breadth of seven kilometres; and forms in the 89th kilometre, what is called the pass of Serapeum; which bit of rock is now the only obstacle of the canal from the Bitter Lakes. After this is the Chaluf pass, which leads to Suez. All the navigation of this part of the canal is comparatively easy; the curves are few, and it is quite sufficient to be careful of the steerage so as not to get out of the bearings between the buoys, to pass without any difficulty.

In fact, the day when the canal attains forty metres of width, and admits of simultaneous navigation both ways, the necessity of the *gares* or widenings will be done away; and when there are eight metres of depth in all parts of it, as now announced, and which will soon be the case, it will be the most complete and finished work of the age. At present it may be navigated with much facility, especially by vessels which draw under 5·5 metres, and no vessel should attempt to pass through it that are over that draft.

We have performed our task. The *Berenguela* arrived at Port Said on the 14th of November, and after passing all the obstacles, she reached Suez on the 17th of December, receiving on board her stores, and was ready for sailing for Manila. Perhaps if the circumstances admitted it she might have taken this route in another manner, relating the events of the passage to this point. My only desire has been to fulfil my mission to this Company to whom I am indebted as initiating all her proceedings.

JOAQUIN NAVARRO,
*Capitan de Frigata.*

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## THE GEOLOGICAL FEATURES OF THE MEDITERRANEAN.

*(Concluded from page 409.)*

AND whilst the Latin towns were putting up with all that they suffered and had entered on a new career, the Mahometan sects, those same Arabs who had spread themselves over the shores of the Mediterranean, a new and enthusiastic people from their conquests,

chose to seat themselves on the Iberian peninsula, compensating themselves for being distributed with the creation of the universities of Cordova and Grenada, in imitation of those they had established at Bagdad, Bassora, Damascus, and other places, to initiate the mysteries of their service. And they succeeded so well that from the first century of their conquests we see them excelling in navigation and geography, undertaking long marine expeditions and committing their Hydrographic observations to paper.

Among others who particularly excelled in geography was Edrisi, a scholar of Cordova and native of Canta, known to the Nubians, and who about the middle of the twelfth century wrote the work entitled Geographical Recreations, which was favourably received, and which contains so complete a description of the western part of the Mediterranean. Already had his co-religionists penetrated into the Atlantic, had visited a portion of Western Africa, had visited the Fortunate islands, perhaps Madeira, and consequently made use of maritime charts.

The voyage which the Rabbi Benjamin de Tudela undertook in 1160 to the South of Europe, Greece, Palestine, and Egypt, etc., contributed not a little to the extension of geographical knowledge. All these descriptions and didatic works accompanied by maps were published by the Latins of the middle ages, occupying themselves exclusively in parts where commerce as well as war flourished, the Genoese, Spaniards, as well as Venetians being engaged in the commerce of the east.

To the nautical notices collected by the Spanish Arabs we must add those of the Catalonians and Arragonese, the Genoese and Venetians, who in the twelfth and thirteenth centuries were masters of the whole commerce of the Levant and much of its neighbourhood, possessions which gave them the means of correcting the errors of the charts of the Alexandrian school. Perhaps the Catalonian school was that which tended most to improve the Mediterranean hydrography: at all events it is that school which has transmitted to us the most documents. As soon as the Saracens of Majorca possessed sufficient power they established in that island a nautical school, in imitation of that which they had in the capital, where the celebrated Ramon Lull published, in 1286, his *Phœnix of the Wonders of the World*, and attracted to him those skilled in cosmography and pilotage, who handed down to us their art in constructing navigation charts.

In the time of the celebrated Lull, and before Flavius Gioja made known in Europe the compass needle of his invention, the Catalonians and the people of Majorca used it in their voyages in the Mediterranean something in the way that the Indians did, or it might have been the same floating loadstone enclosed in a cup of water by which whether in daylight or the dark night, they would recognize the pole, the only guide which those old navigators had. But from the time that the loadstone was mounted and the compass card was invented, a great change was effected in the art of navigation, the effect of which was lengthy expeditions, which until then were only fabulous. Spanish and Portuguese navigators launched boldly out contributing to the improvement of hydrography in general.

That of the Mediterranean was also going on, and the Catalonians and people of Majorca did not hesitate to embark in expeditions along the African western coast, for which their excellent plain charts had been much improved, one of which the beautiful atlas of the Majorca nation, by James Farrer, preserved in the Imperial library of Paris, is one of the most ancient and complete that are known. We shall not stop to describe it, deeming it sufficient to preserve its date of 10th August, 1346. In this work the author describes the voyage which he made to the river Oro on the African coast.

Another MS. chart, dated in 1439, by the Majorcan, Gabriel Vallsaca, which has escaped the destroying hand of time, shews like the Atlas of Farrer what was then known, proving that if these Catalonians and Majorcans were not the inventors of charts and plans, they improved them, and that they were already accustomed to navigate the African coast, and were as early then as the Portuguese themselves.

And to shew that the fame of the Portuguese navigator was well merited is proved by the patronage of James, the son probably of James Farrer, when he sent to Majorca for the purpose of obtaining a professor to take the direction of his great Nautical Academy, established in 1415 at Sagres.

With the amount of information obtained in the schools of Majorca and Barcelona, Portuguese and Spaniards ventured to extend their voyages in the ocean, some of them doubling the Cape and others discovering land to the west.

Thus the progress of nautical information was unlimited. Nautical geography was improved; the astrolabe, which had succeeded the balestible, was substituted for the octant, the variation of the magnetic needle was studied, which so much assisted Columbus in his first expedition to the New World. The plain charts which served admirably for the Mediterranean, were not adapted for use when much range of latitude was required, and the errors which those navigators found were noticed in the works of Cortes, Nunez, and others, about the middle of the sixteenth century, which obliged the Spanish cosmographers to substitute another, and by maintaining the parallelism of the meridians represented properly the due proportions of the land. His invention which he termed the spherical chart, if it does not satisfy every demand, was a laudable attempt which, improved on by Gerard Mercator, and completely perfected by Edmund Wright, has produced those magnificent charts commonly called reduced, constructed on the projection left by Mercator.

Meanwhile in the beginning of the sixteenth century, the MS. charts were gradually giving place to engraved charts, Geodesy came to their assistance; the capes, islands, and most important points were no longer fixed by means of bearings, but by triangulation combined with astronomical observations. Hydrographers were no longer contented with representing the line of coast, but also added to it the position of adjacent high land, expressed in topographical symbols, adding to them views of the most remarkable objects, to enable navigators to recognise points of use to them in making out ports and

description of coast. Thus, step by step, we have arrived so far, that the modern navigator finds a multitude of things for his assistance, which the ancient navigator knew nothing of, and which his vigilance could not relieve him from, and after all the charts themselves would be very incorrect in their positions.

The progress which we have noted operated on the results of the time. In the seventeenth century the actual extent of the Mediterranean was scarcely known, and the charts of it to this day have errors in them which were common to the time of Eratosthenes and Hipparchus; for the application of improvement was made rather by large expeditions, than to the ordinary navigation of it which was done by routine. But hydrographers being satisfied with having collected charts of all the seas of the globe, then directed their attention to the Mediterranean to rectifying its coasts, particularly those of Africa, whose inhospitable shores were avoided by navigators.

The charts of this sea were very erroneous. Constructed by Dutch speculators, and also Italian, French, and English speculators with no more than the old directions, they abounded in defects. The Spaniards, the most expert in their day in the art of constructing them, had abandoned this branch of speculation and used foreign ones for them.; and it being necessary to cover the risks of such documents compelled the illustrious nations to undertake that care. France, Spain, England, and Holland, and other maritime powers initiated the work of improvement, and continuing to this day have raised their character largely. In 1788 a magnificent atlas of the southern coast of the peninsula was published by Spain, done by Tofino. In 1802 Alcano Galiano commanded a hydrographic expedition to the Levant, in order to rectify some important positions of the Morea, the Archipelago, Marmora, the Bosphorus, Karamania, and African coasts and islands, works which merited general approval and which in those times were looked on as improvements.

France had published in 1737 reduced charts of the Mediterranean constructed in their office of charts and plans. Later than this Billan, D'Anville, Verguin, Bernard, and others followed in the same office with their works of the coast, and in the present century B. Beaupre, Kerhallet, Hill, Berard, and others, rectified and completed the old works.*

* It is with some surprise that we find our author has omitted the name of Beaufort in the real contributors, by actual maritime survey, to the Mediterranean charts. And yet this officer long before Smyth did more than all the rest in constructing from actual observation his six or seven sheets of the coast of Karamania beginning at Rhodes and ending at Iskenderoon. Moreover we believe that he was the only English officer who was wounded in his labours, being fired on by the Turks, the effect of which he felt to his last, and for which he had a government pension. So correct was his work that it is considered superior to any at the present time, and is the only authority consulted. In saying that he did more than any one else in this work, our observation is founded on the fact that his work cost the government *literally nothing*, a solitary instance of an officer actually doing a work requiring expensive instruments and a large collection of tools without recompense or reward. Let those who doubt this fact, well known to others

England reproduced the French and Spanish works of the past under the management of Capt. Knight, Moor, Reiner, and others, and in 1817 sent that intelligent officer Capt. W. H. Smyth to explore what was required in this sea, to rectify former works in particular, in which time he filled 107 sheets of charts and plans, which up to the present time has had the confidence of navigators. To Smyth succeeded Graves, Spratt, Mansell, Copeland, and others.*

The Italians published also in the same century charts of the coast of the Gulf of Venice by special hands, until in 1825 appeared the magnificent atlas of the Adriatic Sea published by the Milan Institute, which from its size and exactness of detail has deservedly become the most esteemed.

And such have been the means by which Mediterranean hydrography has progressed, which in these days is so much admired; given in that multitude of charts and plans, which for their exactness in all their parts stand unrivalled, represented as it is by expert artists who understand their work well, and whether by engraving or lithographing have by their united labours produced the best specimens of hydrography of the present day.

With so many and such perfect documents of hydrography as we now possess, there is no kind of difficulty in determining the extent and limits of the Mediterranean Sea.

The Mediterranean lies between longitude 0° 52′ and 42° 25′ E., reckoning from the eastern entrance of the Strait of Gibraltar to the interior of the Gulf of Iskenderoon on the parallel of lat. 36°. From south to north it includes from 30° 16′ to 45° 48′ north latitude, and including with the sea of Marmora and the Black Sea, 2,025 miles from east to west, and 932 miles from north to south.

If we consider its line of coast and of the islands it is very large. Thus for Sicily some 710 miles; Sardinia, 513 miles; Candia, 500 miles; Corsica, 430 miles; Cyprus, 380 miles. And the Mediterranean may be estimated at 792,332 square miles inclusive of the islands, the number of which exceeds 500 without reckoning islets.

Navigators both ancient and modern as well as geographers have divided the Mediterranean into distinct seas, giving them the names of

besides the author, consult first the sheets of the work itself, and then refer to the evidence given before the Arctic Committee of the House of Commons, where the examination of Sir F. Beaufort stands recorded. We have all heard of the old adage about "Modest men," etc. But in that evidence it stands on record, as it was wormed out of him by question and answer. We have not seen it elsewhere stated in print, but having served under him, as Editor of these pages, we feel pride and satisfaction in making the statement.—ED. *N.M.*

* Besides the names above mentioned of the contributors to Mediterranean hydrography may be added that of Mansell, as the contributor of Syrian hydrography, with Spratt as that of Egypt, works which have been done under the knowledge of the author of these lines, the former being a work which for its difficulty from the very dangerous nature of the coast, like that of Karamania stands unrivalled. And again, although the Russians have given us capital charts of the Black Sea, it was left to Captain Spratt to furnish us with his beautiful survey of the delta of the Danube.—ED.

the coasts washed by them. Thus it is called the Balearic or Sea of Valencia, the Sea of Sardinia, Liguria, Tyrrhean, Eolian, Sicilian, Adriatic, Levant, etc. But modern hydrographers divide it merely into two great portions, and call that part the eastern to the east of the Strait of Messina, and the western that part to the west of that meridian.

For our object and because it corresponds better with our purpose we divide it into three portions. The western between the eastern part of the Strait of Gibraltar and the meridian of Corsica; the central one from the meridian of Santa Maria de Lucca to that of Ras Sun; and the eastern one from the Adriatic to the Sea of Syria.

We have omitted here the Sea of Marmora and the Black Sea, for besides being independent like other lakes they are rather tributaries.

As to the soundings of the Mediterranean, it is not yet thoroughly sounded, although in some few of its parts, the depth of which does not exceed 4,000 metres, a depth much less than is found in the ocean, as is easy to suppose considering the smallness of its valleys compared with that immense tract. The greatest depths of the Mediterranean are obtained in the Appenine system and off Cirenacia on the African coast; between Candia and Egypt and in the valley formed by the little Atlas, and the Pyrenean and Alpine systems.

In reference to the part between the Gulf of Cabes and the south coast of Sicily, it is so shallow in some parts that a mere inspection of it reveals to us as in the Archipelago, the great catastrophe and the loss of land it has undergone. It may be considered as no more than an extensive bank in which the volcanic element prevails, the summits of which are represented by the islands of Malta, Lampedusa, Pantellaria, Karkenna, etc.

As to the sounding of the western part, which is that under our consideration, it follows a gradation analagous to the submarine valleys which enclose it. Leaving Gibraltar the waves progressively increase in proportion as we advance eastward, so that between the Balearic Islands and the African coast, the greatest depth obtained is about 2,300 metres, and the least depth between the same islands and the Spanish continent, and unknown as yet between Minorca and Sardinia.

Then as to the kind of bottom it may be observed that the prevailing soundings of the whole Mediterranean is mud, as in its valleys, consisting of lime deposited from the waters which descend from the Cordilleras which enclose it.

Formerly seamen cared little or nothing about the great depths of this sea, and sufficient for their purpose was the knowledge of the soundings on the coasts when they were under 100 fathoms, that of the harbours they frequented and also of the rocks which lay in their way. It is not unlikely that the deep sea fishermen were the first who took an interest in this subject, that they might know the depths which the fish inhabited, that they were interested in finding perhaps in depths above 200 fathoms. The coral fishermen were also interested in the subject in respect of the banks on which it is found, and which is said to grow in depths of fifty fathoms to the best advantage.

But the principal exploration of the depths of the ocean in general date from a recent period, and are due to the necessity of the present age. It was not sufficient for the present generation to communicate by land with that rapidity of lightning discovered by Franklin, effected by the lines of the electric telegraph. It was necessary that they should traverse the sea; to shorten the distance run over by vessels, and to send written words to opposite coasts with the same celerity by sea as by land. Thus was originated the submarine electric telegraph, and thus was gained the desired result. All that was necessary was to find a safe bed in which it might repose beneath the ocean depths. Hence the soundings taken in great depths; in which to lay down electric cables such as that connecting the Balearic Islands with the Spanish and African continent; France with Algiers, already done with Minorca, with Corsica, Sardinia, and Galita; Malta with Egypt and Italy.

The most remarkable feat in laying down electric telegraphs, was that of one which lies at present between Valencia in Ireland and Newfoundland. In former volumes of this work a complete account of the several attempts to effect this object is given; from the earliest to the latest, and that latest is thus alluded to in our volume for 1866. "Our readers will remember that in 1865 it was broken and that the end lay at the bottom of the ocean until the following year of 1866. In this year a new line having been decided on it was laid down successfully, and the vessel which did this having been provided with another piece of cable, which was required to complete the distance from the end of the broken part of 1865, it was of course necessary first to find this end. The observations had been made with so much care, that the precise position of it in latitude and longitude was known. All then that was necessary was for the vessel to hook it, which after two or three attempts she did, and brought the end of the lost cable to the surface. This done the piece required was joined to it and was safely landed. It was then as good a cable as the former which had only just been laid down; and the company instead of having one cable only, was now in possession of two, which have since continued to be used."

We find the following lines recording this feat in our volume for 1866.

"This failure of the old, preceding year,
Had left a cable halfway from Cape Clear:
Its place was known,* as there it lay aground,
By observation now as easy found.
To finish this with a new end remained,—
And then a second cable would be gained!
Enough! To Moriarty† was assign'd
The task of this old cable's end to find:

* Broken on the 2nd of August, 1865. Picked up and completed with a new piece to Newfoundland, between the 2nd and 7th of September, 1866.

† H. A. Moriarty, C.B., R.N.

And well 'twas done; with observation clear
He picked it up, well knowing how to steer.
Thus a new cable was no sooner laid,
Than one its equal by its side was made.
Another glorious feat thus here was seal'd,—
Two lines, instead of one, now lay revealed;—
To share the work hereafter to be done
Between Great Britain and her elder son!"

The foregoing lines are recorded in our volume, besides being published in a little brochure entitled "Retrospect," in both of which much more appears on this interesting subject than is here recorded. —ED. *N.M.*

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## RESCUE OF LIFE BY SWIMMING, AND EXPERIMENTS THEREON.

THE accompanying paper is translated from some interesting remarks published, under authority, by M. Ferrand, druggist and member of the Lyons Board of Health. He was deputed by the French Government to re-organise the system of life-buoys in that country, the insufficiency of which had too often been made palpable. With this view he procured, both in France and foreign countries, the most complete description of the different apparatus employed:—

"While looking" (says M. Ferrand) "at the great display of the resources of civilized nations, works in art, inventions, machinery, government grants, associations, and international congresses, my subject leads me to speak of a feat which, to my mind, has a peculiar magnificence,—I mean rescue by a single man, without life-belt or rope, but stripped for the emergency; the man who, with no aid but his own courage, throws himself into the waves to save the life of a fellow-creature at the risk of his own life. The difficulty of this operation is generally very great, but it appears to me to be increased to an enormous extent, so as to render abortive many attempts, through ignorance of the best method of accomplishing the rescue of a drowning person, and to bring him easily and safely to the shore, by swimming only.

"I have frequently questioned retired boatmen of the Rhone, Saone, and elsewhere, all tried men for courage and skill, and their unanimous reply has been: 'A drowning man must be taken hold of as best possible: you are lucky if you can simply support him, if a boat or a rope is seen at hand; in the absence of these you must either push him on before you, or drag him, according to circumstances.' But, I answered, what happens if you are unable to hold the head of the drowning man long enough out of water? 'Suffocation takes place while he is in your hands.'

"The method which has most interested me is that performed by an Englishman named Hodgson, of Sunderland; and after having experimented on and developed it, I recommend it for its precision and

efficacy. It consists in holding the drowning man by the hair, and turning him on his back. Then the salvor turns over rapidly with his face upwards, places the head of the man on his breast, and thus swims to land. This method is so simple and easy, that in an experiment which I had the pleasure of making this autumn with my friend Dr. Bron, I was able with ease to practice simultaneously the rescue of two persons more or less motionless. One of them did not know how to swim, and that was a great difficulty, for he grew stiff with fear, lost the floating line, so important to aid us in advancing, and hindered me considerably by lying along my side like an immoveable oar on the side of a boat.

"The drowning man, then, should be held with the left hand, his face, and his face only, being out of water. If he is bald, support him by the beard or chin, or even by the top of his coat collar (for generally the drowning are clothed). Keep your right hand free to help you in swimming, or to take more secure hold of ropes or boats, if any be near, for if the shore cannot be gained you can support yourself thus in the water for several hours, waiting for the assistance which the ebbing tide, the currents, or the neighbourhood of rocks, render necessary.

"I have thus examined the easiest case, that of the fainting, or at least motionless drowned man, but I will next discuss the case which I have found full of anxiety, and not free from uncertainty—that of saving a drowning man who, without help, must certainly die, and who, in distraction, struggles with the energy of despair. All English and other rescuers invariably answer, 'Don't touch him; the sacrifice of your life will be useless; wait till he becomes calm; which happens after the first spasm. This waiting may be prudent up to a certain point, but it appears to me particularly cruel. If two hours of care and effort are sometimes necessary to restore a drowned man to life, it often requires but a minute to make him a dead man. The desperate clutch of the dying man undoubtedly has its dangers, but only if you allow yourself to be seized first; and otherwise it is not really as insurmountable as is believed. As a man loses consciousness he gradually releases his hold of the object which he has seized with his clenched hand. Thus, then, from this first point of view there is an exaggerated fear which may cause the loss of a precious moment, as I have just remarked, and with it the certainty of success; a moment so precious that in a deep and agitated sea the shipwrecked man may disappear under your very eyes, almost within arms' reach, without any possibility of his being found again. I object, then, to that excessive prudence which is recommended, as it may be attended with serious consequences. How agreeable would it be to me to blot out from the vocabulary of rescuers the cruel 'Don't touch him.'

"But protesting is not everything; all life is precious; and if the difficulty is not absolute, according to my first statement, it is not the less continuous. How, then, can it be most wisely encountered.

"Don't let yourself be seized, I said; but I must add, be ready to seize the drowning man rapidly from behind him, and at two points

simultaneously, to render his body, as far as possible, motionless. Keeping the face out of water, seize him at the same time by the hair with the left hand, and by the right shoulder with the right hand. Thus keep him at a distance, your arms extended in front and your body in an upright position; then take care of his right arm, and if he throws himself about, if he seeks a point of support which may prevent your turning him on his back, seize this arm below the wrist, because that is the part easiest to take firm hold of, and place it forcibly on your left hand behind his head. Very quickly, as will easily be conceived, the two hands of the dying man will fix themselves instinctively on the left hand of the rescuer. If the case is otherwise, if the hands of the man are fastened closely on the side of him who comes to snatch him from death, it does not matter. The rescuer is bound not to return alone. His head is kept free from all surprise, and his legs are out of reach. Really, it is in consequence of the formidable ardour of the drowning man in seizing on the trusting hand which first approached him, or the leg or sides which come within his reach (in order to throw himself finally on the neck of the rescuer, as if his head were a safety buoy), that the measures and precautions which I have just described are all indispensable. Under these conditions the rescue will probably be no longer obstructed.

"When the drowning man has sunk to the bottom he often reappears once or twice on the surface, and by that time, when he is reached, his exhausted strength renders him by no means dangerous; and in all cases the muscular relaxation having destroyed all his tightness of grasp, the process of taking him to land has no longer the violent character of which I have just spoken. If the man you are saving is conscious encourage him, sustain him a minute with your outstretched arm while taking hold of him by one of the armpits; tell him to keep his legs stretched out, as you are going to place his head on your breast, and carry him off in complete safety.

"But the third situation, which causes me most anxiety, is that of the man who dives, and who, by reason of the refracting medium in which he finds himself, distinguishes only with difficulty, that is from close quarters and like a cloud, the uncertain shape of the drowning man, who is moving about at the bottom of the water; he may then be surprised and seized at random, for the drowning one sees no better, and is, moreover, perfectly unconscious. The judicious boldness of the rescuer must then make him consider the time that passes away, for the danger exists only during the first moments, and in this most difficult case, if there is any resistance, the diver must confine his exertions to thrusting the man to the surface, in order to take hold of him with more certainty and strength after he has breathed.

"It is not, then, without reason that I persist in saying that, however perilous be the situation which has come about, the proceeding which consists in taking hold of a drowning man who is unconscious or who has not come to his full senses, or even of one who is in the last convulsions of death, is perfectly and readily practicable.

"To enforce my convictions on this point I invite the reader to

follow for a moment the narration of the experiences and calculations which I subjoin. It is well known that a body plunged into the water has its weight diminished by a quantity equal to the weight of the quantity of water displaced by the body; let us see what is the quantity of water displaced by the drowning man, and, consequently, what is the difference in the weight to be supported by the rescuer. According to my experience an adult, weighing 75 kilogrammes,* displaces 73 litres, and, therefore, weighs no more than two kilogrammes when it is entirely submerged. If the head is out of water the volume of water displaced is necessarily less, and the total weight borne is augmented by from four to six kilos. In both cases this is a weight easily borne, undoubtedly varying with different persons, a weight that can be still further reduced, as I will proceed to show. I have found the weight of a human head of middling size to be 4½ kilos.; plunged into water it displaces exactly four litres, equal four kilos. in weight. So there was only this weight of ½ kilo. to keep the head at the bottom of the water, and, consequently, a force of ½ kilo. employed to support the head would keep it at the top of the water.

"I have said that this quantity, little at the most, was certainly a little variable according to the individuals and their ages, for with young subjects, or those who are lean and withered, the specific gravity is a little higher, but it may be diminished at will to some extent; it is sufficient for the swimmer to introduce into his chest a greater or less quantity of air to augment his volume, and so diminish his specific gravity. If, instead of two litres of air, the quantity which he has in his lungs, he takes a long breath and inspires four litres, the quantity which his lungs can contain, he can support so much the greater weight. This explains not only how those who are less skilful can float on their back, and how, also, by keeping nothing but the face of the drowning man out of the water, the weight can be reduced to three kilogrammes only.

"The trunk of the body has then very nearly the same specific gravity as water; but during life, and especially when long breaths are taken it becomes lighter than water.

"If the question is raised as to whether the position of the rescuer lying on his back is quite necessary, I answer that I can recommend it only after thorough study, and that I can justify that recommendation. In considering their exact advantages, I have come to the following conclusions:—In swimming on the back, I easily practised the simultaneous rescue of two adults whose heads were placed on my breast; and in another experiment, I found it impracticable to save a single youth of fifteen years old resting on my shoulders, swimming in the ordinary way. To show how far the first-named experiment could be carried, I performed the following experiment: a weight of twelve or even fifteen kilos. placed on the chest of the swimmer was

* The French "kilogramme" or "kilo." is equal to two pounds avoirdupoise, and the "litre" to one and three quarters pints.

easily supported above the surface of the water; whilst the same weight attached to the nape of the neck or to the shoulders pressed so heavily on the supporter of it, that he was soon obliged to place himself in an upright position in order to get breath, and to demand, in a gasping tone, to be released from his load. In other words, it was simply like fastening a stone to the neck to drown one's self.

"One of these two positions then was defective, that of swimming on the stomach. Why is this? for it seems to be more natural and preferable, especially as offering the aid of the two arms to swimming, and of being able to see in front. I think the explanation is to be found in the estimate of weights which I have just given, proving that he who swims in the most customary manner on the stomach is really heavier than he who swims on his back. The difference is in the man himself, for, in the ordinary way, he has to bear the weight of his own head (four kilos.) in addition to his burden (twelve kilos.), whilst in swimming on the back the head is submerged all but the face, and the weight which the swimmer has to support becomes that much less. Other scientific estimates may also be called in to the support of this preference which I give to swimming on the back. Is it not a scientific fact, that a body plunged into a liquid undergoes from this liquid a vertical pressure equal to the volume of the liquid which it displaces? Now, in swimming on the stomach, this pressure compresses the chest, which is the dilatable part, and thus renders most painful the deep inspirations required after prolonged efforts.

"Is it not also certain that the stability of a floating body is so much the greater in proportion to the lowness of position of the centre of gravity? It is for this reason that in ships the heaviest bodies, together with the ballast, are placed in the hold.

"In swimming on the back, the rescuer thus has more stability, his chest is more dilatable, his respiration less difficult, his specific gravity lightened by the greatest possible introduction of exterior air; he is free from every obstacle, and his hands being so much freer, easily sustain and protect him whose life he wishes to save.

"In such cases respiration is often rendered difficult, and the strength is diminished by the sudden impression of cold, by exaggerated efforts, and above all, by emotion. In these circumstances the rescuer, in order to preserve all his power of action, must carefully manage his breathing, as in other spheres the singer and the clever wrestler have to do: thus he will succeed, when he requires to call up the presence of mind of which he is capable.

"To discover the point where a drowned man is, who has disappeared in calm water, the bubbles of air which rise to the surface are a sure indication for the diver.

"Finally. Such is my confidence in the method above described that I desire to make it known by all possible means, and above all, by the practice of my directions in all swimming schools. In effect, I propose to make as many men capable of saving their fellow-men as there are swimmers, and thus to augment the chances of safety for all who are in peril of drowning."—*The Journal of the National Life-boat Institution.*

## Ethnographic view of Western Africa.—*Senegambia.*

Western Africa may be divided, according to its population, into three grand divisions. First, Senegambia, extending from the southern borders of the Great Desert to Cape Verga, a little south of the Rio Grande, and so named from its being watered by the two great rivers, Senegal and Gambia. Second, Upper or Northern Guinea, reaching from Cape Verga to Kamerun mountain in the Gulf of Benin, about four degrees north latitude. Third, Southern or Lower Guinea, sometimes called Southern Ethiopia, extending from the Kamerun mountain to Cape Negro, the southern limit of Benguela.

The term Guinea is not of African origin, or at least not among those to whom it is applied. There is, according to Barbat, a district of country north of the Senegal, known by the name of *Genahoa*, the inhabitants of which were the first blacks that the Portuguese encountered in their expeditions along the coast in the fifteenth century; and they applied this name indiscriminately afterwards to all the black natives which they found further south. In the two succeeding centuries it was applied in a more restricted sense to that portion of the coast which is now better known as the gold and slave coasts, owing to the fact, perhaps, that this region for a time offered a larger number of slaves for the foreign market than any other part of the country. The natives here acknowledge this term as applied to themselves, but it was undoubtedly borrowed in the first instance from the Portuguese.

The physical aspect of the country, as might be inferred from the immense extent we have under consideration, is exceedingly variable, but is characterised everywhere by excessive richness of natural scenery. The coast of Senegambia is somewhat flat and monotonous, but this is the only exception to our general remark. In the region of Sierra Leone, Cape Mount, and Messurado, the eye rests on bold headlands and high promontories covered with the richest tropical verdure. In the vicinity of Cape Palmas, there are extended plains, slightly undulating, and covered with almost every variety of the palm and palmetto. On the coast of Drewin the country rises into table-land of vast extent, and apparently of great fertility. The gold coast presents every variety of hill and dale; and as we approach the equatorial regions, we are saluted by mountain scenery of unrivalled beauty and surpassing magnificence.

The inhabitants of Western Africa may be divided into three great families, corresponding to the geographical divisions which have just been made.

In Senegambia, the principal tribes or families are the Jalofs, the Mandingoes, the Fulahs, and the Susus, who belong in part to Senegambia and in part to Northern Guinea.

The principal families in Northern Guinea, are the Vais, the Manon or Kru, the Kwakwas or Avokwon, the Tuta, the Dahomey, and the Benin. Those of Southern Guinea, are the Pongo, Soango, Congo, Angola, and the Azinko families.

The inhabitants of Senegambia are distinguished from those of Northern and Southern Guinea, by being Mahomedans and by all those changes in their social character and condition which that religion ordinarily introduces among those who embrace it. They may be regarded as standing something higher than the pagan tribes in point of civilization, and this shows, so far as this single circumstance goes, that the African race are not entirely incapable of improvement and civilization.

After giving a slight sketch of the different tribes or families that have been enumerated, we shall endeavour to show in what point they resemble, and in what they differ from each other; and point out, as far as we can from our present imperfect knowledge of the subject, how far these different families are related to the aboriginal races of the continent of Africa.

There are a few general statements, however, that it is proper to make before descending to particulars.

In the first place there are no large or extended political organizations in Western Africa, with the exception perhaps of the kingdoms of Ashanti and Dehonai, and neither of these has a larger population or greater extent of territory than the smaller kingdoms of Europe. For the most part, the people live together in independent communities, of not more than eight or ten villages, and with an aggregate population of from two to twenty-five or thirty thousand. In these different communities they have no written forms of law, but are governed for the most part by certain traditional usages, that have been handed down from generation to generation. Nominally, monarchy is the only form of government acknowledged among them; but when closely scrutinized, their systems show much more of the popular and patriarchal than of the monarchic element.

The inhabitants of the country (with the exception of some smaller tribes of whom we shall speak more fully in another place) are by no means to be ranked as the lowest order of savages. They have fixed habitations, cultivate the soil, have herds of domestic animals, and have made very considerable progress in most of the mechanical arts. Traits of intellectual vigour disclosed by them in their native country, the style and structure of their languages, and their aptitude for commercial pursuits, show that they are entitled to a much higher place among the uncultivated nations of the earth than has generally been assigned them. They are not remarkable for metaphysical acumen, or for powers of abstract reasoning; but they have excellent memories, lively imaginations, and for close observation, especially in scrutinizing the character and motives of men, they are scarcely surpassed by any people in the world.

The tribes of Senegambia have long since embraced the Mahomedan religion, and are zealous propagators of it, but without having abandoned the use of *fetiches*, or any of the essential elements of paganism. As a race, they are eminently religious, and shew a singular capacity for absorbing any number of religious systems without abandoning anything or being in the slightest degree disturbed

by the conflicting spirit and claims of the different schemes that they may have incorporated into the same creed. Hence, the religious systems of Senegambia may be regarded as a medley of all the essential elements of Mahomedanism, Palaism, and Paganism.

The tribes of Northern and Southern Guinea are essentially a pagan people; but in their religious notions and idolatrous worship they differ very much from each other. These differences will be pointed out when we come to speak more particularly of their ethnographic relationship. In both sections of the country there are many decided traces of Jewish religion. Among these may be specified the rite of circumcision, which, with the exception of the Kru or Manou families, is, we believe, universal; the division of the tribes into families, and in some cases into the number of twelve; bloody sacrifices, with the sprinkling of blood upon their altars and doorposts; the observance of new moons; a formal and specified time for mourning for the dead, during which period they shave their heads and wear tattered clothes; demoniacal possessions, purifications, and various other usages of probable Jewish origin. In this connection it may also be mentioned, that we have recently discovered in Southern Guinea some traces of a corrupt form of Christianity, something, at least, that looks like infant baptism.

Some of these forms of Judaism that have just been mentioned, especially that of circumcision might be supposed to have been borrowed from the Mohammedan nations of Northern or Central Africa, if it were not the entire absence of every other trace of this faith, and for the jealous care with which the maritime tribes have always guarded against its introduction among themselves. It might also be surmised that the traces of Christianity that have been recently discovered among the tribes about the Gabun, might have been derived from the Roman Catholic missionaries who laboured in Kongo during the sixteenth and seventeenth centuries, were it not for the fact that the same things are practised by the Pangwes and others, who have recently descended from the mountainous regions of the interior, and who, therefore, could have scarcely been reached by any of the forms of Romanism. It is much more probable that these traces of Christianity have travelled across the continent from Abyssinia.

Having made these general statements, we will now give a more particular account of the different families of Western Africa, and will begin with those of Senegambia. The leading tribes here are Mandingoes, the Fulahs, and the Jalofs.

The Mandingoes occupy the first place as a commercial people. Their principal settlement is in a country which bears their own name, near the source of the Niger, and about seven hundred miles from the sea coast. They have extended themselves over the Kingdoms of Bainbouk, Banbara, and Wuli, to the North and East, and in smaller or larger groups they have covered all the country from Jalaconda to the sea-coast. As trading parties they have formed small villages around all the European settlements on the Gambia, at Sierra Leone, and sometimes go so far down the coast as Cape Messurado. They

are to be met with on the upper waters of the Senegal, and Laing says they sometimes go as far as Tangiers, but this we think scarcely possible. Taken altogether, they are perhaps the most civilized, influential, and enterprising of any of the tribes of Western Africa. Generally they are men of tall stature, slender, but well-proportioned, black complexion, and woolly hair, but with much more regular features than belong to the true Negro. Their dress consists of a three-cornered cap of their own make, of short trousers, over which is thrown a sort of blouse or square cloth also of their own manufacture, and leather sandals. A short sabre in a leather case is suspended from the left shoulder. In front they wear a small leather pouch, in which are charms or amulets. As a general thing, they are taciturn and thoughtful, but when they are accosted in a friendly manner, they can easily be drawn into conversation, and will give more information about the interior kingdoms than any other people to be found on the coast. Many of them seem to have a good notion of the Arabic, and one of their most lucrative employments is to write scraps of this language, chiefly extracts from the Koran, which they sew up in small bags, and sell to the Pagan tribes for charms or *fetiches*. They are zealous promoters of the Mohammedan religion, and wherever they go establish schools for the purpose of teaching Arabic and inculcating the principles of their religion. In their schools the children are taught to make Arabic letters in the sand. Laing speaks of them as a shrewd and superior people; Park, as a "very gentle race, cheerful in their disposition, inquisitive, credulous, and fond of flattery." He experienced much kindness from them in sickness and distress, and especially from the females.

The Fulahs are a more numerous people. Their original country is Fuladu, north-west of Manding, and between the sources of the Niger and the Senegal. Besides this, they occupy three considerable provinces in Senegambia, viz.:—Fluta-Torro, near the Senegal, Futa Bondou, and Futa Jallon, the capital of which is Timbu, to the N.E. of Sierra Leone. They have also extended themselves into the central parts of Sudan, and have conquered several negro kingdoms along the banks of the Niger. In the central regions of Africa they are known as Felatahs; but Adelung and others have satisfactorily shown that they are the same people as the Fulahs of Senegambia.

They are not regarded as a pure negro race. Their complexion has been variously described as a *bronze*, *copper*, *reddish*, and *reddish-brown* colour. Scattered over so immense an extent of country as they are, it is not surprising that there should be some variety of complexion, as well as other physical traits among the different branches of this great family. They do not regard themselves as negroes, but insist that they are a mixed breed; and this opinion is entertained by the majority of those who have given particular attention to their ethnography; but hitherto it has been difficult to ascertain what the elements of that mixture are. Their physical type of character is too permanent and of too long standing to admit of an idea of intermixture. In all mixed races there is a strong and constant tendency to one or other of

the parent types; and it is difficult to point out a mixed breed that has held an intermediate character for any considerable time, especially when it has been entirely cut off from the sources whence it derived its being. But the Fulahs are now, in all their physical characteristics, just what they have been for many centuries. And it would seem therefore, that their complexion and other physical traits entitle them to as distinct and independent a national character as either the Arab or the Negro, from the union of which it is supposed that they have received their origin.

Gustave D. Eickthal has published a learned article to show that the Fulahs are of Malayan origin; but Mr. W. G. Hodgson, of Georgia, who has published one of the best and most learned papers in relation to the Fulah people, shows most satisfactorily that the data on which that opinion is founded are quite insufficient to support any such conclusion.

The Fulahs have never been in the habit of selling any of their own people into slavery, except for outrageous crimes, and very few of them, therefore, have ever found their way to the United States. One by the name of Job Ben Solomon, who was kidnapped by the Mandingoes, was brought to Maryland by Captain Pike, about the year 1730, but was ransomed by Oglethorpe, and sent back to his native country in 1733. Another, Abdul Rahahman, forty years a slave in the United States, was ransomed in 1836, and sent to Liberia. James Hamilton Couper, Esq., of Darien, Georgia, in a letter to Mr. Hodgson, a few years since, mentions one on his own plantation, and another on the plantation of Mr. Spalding, of Sapello Island. A very remarkable specimen of this family, by the name of Moro, still lives in Wilmington, North Carolina. He was formerly a slave of General Owen of that place, but for many years has been free. He is now upwards of eighty years of age, seems to be a most decided Christian, and not only reads his Arabic Bible with ease, but evinces a familiarity with its contents most extraordinary for any one of his age.

Those seen at Gambia and Sierra Leone are of a dark brown complexion, soft curly hair, features regular and good, limbs delicate and well formed, and stature about middle size. These traits of physical character however, are not peculiar to the Fulah people. They occur in isolated cases among all the families of Southern Guinea, as we shall have occasion to show more particularly in another place.

The Jalofs occupy all the maritime districts and a considerable portion of the interior parts of Senegambia. They are not like the Mandingoes and Fulahs, interspersed among other tribes over a large extent of country, but have a country of well defined limits, and dwell under one compact government. They are divided into four provinces or kingdoms, but acknowledge one great chief, whom they denominate Barbi Yalof, Emperor of the Jalofs, and whose residence is at Hikackor. The four provinces are, Cayor, which formerly included Cape Verd and the island of Goree (now held by the French); Sin, a small state to the south of Cayor, and embracing about thirty miles of sea coast; Salem, a province lying along the northern banks of the

Gambia, the capital of which is Cayon; and Brenk, which includes the residence and the principal dominions of the Emperor. The entire population of the Jalofs is supposed to be about a million, which is much less than that of the Mandingoes, and perhaps not one-third of that of the Fulahs. It would seem that the Emperor of the Jalofs exercises authority over his subjects, and no one ever approaches his presence without making some decided acknowledgment of his superior rank in the way of bodily prostrations. Goldberry speaks of the Jalofs as having "fine, brilliant, pure black complexions, of a noble and impressive form, a character disposed to benevolence, a degree of self-respect and national pride. They boast of their antiquity and superiority over other African races, with whom they will not intermingle. Their language is said to be peculiar to themselves, is meagre in point of words, but is soft, and easy to be acquired."

It is said that they are almost as much addicted to the observance of caste as the Hindoos. Besides the nobles, who are called the "good Jalofs," there are four distinct ranks or castes, viz., the *tug* or smiths; the *oudae*, who are tanners and sandal makers; the *moul*, or fishermen; and the *gaewell*, who are musicians and bards. The "good Jalofs" will not intermarry with any of these castes. The *gaewell* are the lowest order, and are not permitted to live within the enclosure of the town. They are not permitted to own cattle, to drink sweet milk, and are refused interment, on the ground that nothing will grow where they have been buried. Besides the castes which have been enumerated, there is another called *laubics*, who are said to be much like the European gipsies.

In stature, the Jalofs are very much like the Mandingoes, but have less of the Negro features. Nothing, however, is so striking in their appearance as their intense black and glossy complexion. In some respects they are like the Tibus of the Great Desert, but too little is known of their language to say whether they are related.

As to these three leading families of Senegambia, too little is known of their character and languages to decide how far they are related to each other. In physical character and in language they differ very materially, and it is probable they have been brought together from very remote points of the continent. It is not probable that they are related to the inhabitants of Northern or Southern Guinea.

The Mandingo dialect, as described by Mr. Briar, shows some slight grammatical affinities for the dialects of Northern Guinea, but none whatever, with the exception of perhaps of three or four verbal resemblances, and even these of a doubtful character, to those of Southern Guinea.

The main points of discussion in this article will have more particular reference to the inhabitants of Northern and Southern Guinea. The character, habits, and languages of these will be developed more fully.

Dr. Pritchard, in his work on the "Physical History of Man," has made a just and important distinction between what he calls the Ethiopian and Nigritian branches of the black or African race. The

ancients included all the inhabitants of Central and Eastern Africa under the name of Ethiopians, and they used this term to distinguish them from the Libyans of Northern Africa. The term *Ethiopian*, for a time at least, was also applied to a black race in Southern Arabia, the chief difference between whom and those of the same name in East Africa, according to Herodotus, was, that one had straight and the other woolly or crisped hair. At a later period, the term Ethiopia was restricted to the more westerly districts; and this distinction was undoubtedly founded upon a palpable physical difference between these two great families. They have never been separated, however, by any very marked geographical lines, as communities of the Ethiopian branch have been found interspersed among those of the Ethiopian family.

The well known physical characteristics of the true Negro consist in a dark or black complexion, crisp or woolly hair, retreating forehead, flat nose, thick lips, and very variable stature. The Nigritian and the Ethiopian types of character are distinguishable by a nearer or more remote approximation to this standard. The Nigritian is the most like it, but seldom conforms in all respects. The Ethiopian on the contrary, to use Dr. Pritchard's distinction, is an approximation to the Negro, but never exhibits any of these distinctive features to the same extent. The complexion of the Ethiopian is sometimes black, but more generally a bronze, olive, dark copper, or red brown. In some cases, the hair is black, and is rather curled or frizzled than woolly; their features are more rounded and regular but not so acute as those of the Arab; their noses are not so flattened as those of the Negro, but scarcely so prominent as that of the European; their lips are generally thick and full, but seldom turned out like those of the full Negro; their figure is slender and well shaped, and often resembles that which is most frequently exemplified by the Egyptian paintings and statues.

The same author has applied this distinction to the families of blacks living in Central Africa and Northern Guinea, and those living south of the Mountains of the Moon, of which Southern Guinea is the western frontier.

We take Northern and Southern Guinea as the representatives of these two great branches of the African race, and after giving a brief sketch of the leading tribes or families of the two, we shall point out a few particulars in which they are alike, and then show more fully wherein they differ and upon what grounds they are to be regarded as entirely distinct from each other.

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## MESSRS. DE LESSEPS AND LANGE IN LIVERPOOL.

M. DE LESSEPS, the designer of the Suez Canal, and Mr. D. A. Lange, the English director of the Company, paid a visit to Liverpool on the 27th ult., and after a number of speeches by the Mayor, the chief of

the Chamber of Commerce, and the President of the East India and China Association, M. de Lesseps made the following remarks.

In 1857, after three years of study and preparatory work on the Isthmus of Suez, I came to this great town, which is foremost in navigation and commerce, to submit my project and plans to the examination and discussion of the merchants, ship-owners, and bankers. After the explanations given at a meeting in the Under-writers' room, at which Mr. Rawston presided; at a meeting of the East India and China Association, at which Mr. Charles Turner presided; and at a meeting of the Chamber of Commerce, when Mr. John Torr presided, it was unanimously resolved,—"That the completion and maintenance of such a canal across the Isthmus of Suez would be of great benefit to the commercial interests of this country." At the present time, having been invited by the chosen representative of the town, your eminent mayor, to come for the second time to Liverpool, I have been deeply touched with the cordial welcome I have received from the whole town, and I have seen in that welcome the certainty that the Suez Canal will produce the financial and advantageous results upon which we calculated. The address which the President of the Chamber of Commerce has just presented before this distinguished assembly in the Town Hall, does equal honour to the inhabitants of Liverpool and to myself. It bears witness to the most noble sentiments, for the more considerable that the results of the Canal are, and the more they are destined to bring about a complete revolution in the commercial and maritime relations of the world, the more one is exposed to make great interests suffer which rested on the old system of transactions; but the courage, the energy, and the admirable initiative private character which distinguish the English people in all their enterprises, will show them how to take advantage of new elements of prosperity which are offered to active and persevering minds. Men who have enriched themselves by their talents and their industry, and who have raised themselves above their fellow-citizens, will not fear to impose upon themselves certain temporary sacrifices, and to favour the transformation of the merchant navy, which must multiply commercial relations and increase general prosperity. If we judge of the efforts of the future by the efforts of the past, we may predict that Liverpool will not have to wait long before seeing her relations doubled with India, China, and the other countries of the East. I heartily thank the Chamber of Commerce for its congratulations on the achievement of the undertaking of the Suez Canal. I receive them with profound satisfaction, as much in my own name as in the name of the Suez Canal Company. That undertaking will continue to progress, and by means of its own resources will do what is necessary in order that the new route may meet the requirements and fulfil the services which it is destined to render to the moral and material progress of nations.

I remember, when I was in Liverpool thirteen years ago, saying that England more than any country in the world would profit by the completion of the Suez Canal. Those words have proved themselves

to be true, for whereas France has 250 steam vessels, England has 2,500. Liverpool has in itself prodigious elements for the development of commerce—in its building yards, warehouses, and docks; and, as an instance of the advantage which Liverpool derives from the opening of the Canal, I may state that a Liverpool vessel has recently been chartered to sail from Hankow to Odessa, carrying tea at £8 per ton. This is the commencement of a revolution in the Russian tea trade, and an important and tangible advantage will be gained by Liverpool. I venture to say that the present Liverpool people will, if advantage be taken of the existing facilities and of the splendid range of docks which their predecessors have built, profit immensely by the new route, and that relations will be opened up with countries hitherto unknown to commerce. As an example, I may say that a steamer built at Nantes has come to Liverpool for cargo to take to the East, and will return to Liverpool to discharge. Mons. de Lesseps concluded by expressing his great gratification at the reception he had met with.

Mr. Lange, after thanking the Chamber of Commerce for having done him the honour of associating his name with that of M. de Lesseps, said, it was quite true that he (Mr. Lange) had done all in his power during the last thirteen years to further the great project of the Suez Canal. The project was the conception of M. de Lesseps, and the part he (Mr. Lange) had taken in the scheme when compared with what M. de Lesseps had done was extremely insignificant. At the same time he adverted with pride to the time he had devoted to the success of this great work. They would all agree with him it was a pleasant reflection to think that he had been permitted as it were to perform the task allotted to him. When the canal was finished he thought his work would be over, but he found that was not by any means the case; there were material interests, and most especially English interests, to watch over, which would necessitate his remaining as an English director of the Suez Canal Company. At the same time, English interests were so blended with the interests of other countries that they would not clash with the interests of other nations. He confessed that it was not without great pain that he heard that the opening of the Canal had done injury to the owners of sailing ships. It was unfortunately the case that all great works intended to benefit mankind had always done some special injury. When the corn laws were abolished it was said that the farmers would be ruined, but the result had been that the soil was now made to produce more than formerly. The same might be said with regard to steam. He believed that the opening of the Canal would effect still greater developments in steam by bringing about greater economy of expenditure of fuel than in other ways. With regard to the owners of sailing ships, he hoped their case would not turn out quite so bad as they expected. Traffic created traffic, and the opening of the Canal would bring England into closer connection with enormous territories on the other side of the Canal. New requirements would be created, and the sailing vessels might find a service where they did not now, so that

in fact the change effected might only be as to their relative destinations. Madame Lesseps was present and was loudly cheered.

THE CITY OF LONDON PRESENTATION TO M. DE LESSEPS.—The casket, the manufacture of which was entrusted to Mr. J. W. Benson, of Old Bond Street, is of purely Egyptian design, and the whole is of fine gold, enriched with enamel and wreaths of laurel. It is surmounted by the City arms, and supported by six lions' claws, upon each of which is a column bearing a Sphinx head. In front of the casket, on a raised medallion, are the arms of M. de Lesseps, beautifully executed in enamel, and on the reverse is the following inscription:—"Resolved unanimously—'That the freedom of this City, in a gold box, be presented to M. de Lesseps, Grand Cross of the Star of India, Legion of Honour, &c., &c., for his skill in designing, and his indomitable energy and perseverance in carrying to a successful completion the Suez Canal.'—Woodthorpe." Six of the orders awarded to M. de Lesseps, viz.: the Medijee, St. Maurice and Lazare, the Star of India, the Legion of Honour, Francis Joseph, and St. Stanilaus, are enamelled in blue on the columns. The presentation takes place at the Guildhall.

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## BELLIGERENCY AND COAL.

IT is lamentable to perceive that even thus early in its history the present war manifests the common tendency of modern wars, to become more and more burdensome to those who have nothing whatever to do with them. The demand of Count Bismarck and the Prussian government with regard to coal is neither more nor less than that an Act of Parliament should be passed, making it unlawful for British subjects to ship coal to any port of either belligerent, or to any port from which either belligerent can be supplied. Nothing but confusion can result from mixing up the matter with the question of contraband of war, with which it has nothing in the world to do; the question of what is contraband and of the mode of dealing with it being entirely a question for the belligerents themselves and for their Prize Courts. What is really required is that it be declared by the legislature, that, whenever war breaks out in the world, British coal shall be rendered absolutely inaccessible to the disputants. Now coal stands in the very first rank among the products of British industry. By the time it reaches the port of shipment it is no more a raw natural substance than the cloth of which soldiers' coats are made. Vast capital, a vast array of machinery, and a vast network of railways, have been bestowed on bringing it into a state for exportation. The German papers clamour against the greed and selfishness of England in wishing to go on selling it; but the simple fact is, that the stoppage of the coal trade with the continent means an untold amount of misery among thousands upon

thousands of poor men in Scotland, South Wales, and Northern England. What is the principle upon which it is maintained that they should be starved because of a quarrel between the French and the Prussians?

Assuredly it is no principle of international law. That law is most clearly framed on the assumption that a quarrel between two countries shall not affect the trade of the rest of the world with either of them. Where it permits this trade to be interfered with, the interference is to take place at the cost and at the risk of the belligerents. Either may prevent trade absolutely when there is a blockade, or prevent it in contraband when there is no blockade; but the last rule which the framers of international law would have dreamed of sanctioning would have been that the belligerents should throw on neutrals the duty of strangling their own Commerce. It would have been well for the world if these simple and rational principles had been adhered to; but, unfortunately, nations have come to hate their enemies even worse than they did when wars were of every-day occurrence, and have gradually extended their hatred to all communities from whose ordinary commercial movements their enemies derive the smallest advantage. The legislative prohibition of foreign enlistment and of the equipment of ships of war have been English admissions of a principle strange to international law; and, but for the tendency of the principle to enlarge its sphere of operation, they would seem reasonable concessions to human nature. But we have now reached a point at which it becomes absolutely necessary to make up our minds to what extent we intend to relieve belligerents from that duty which international law imposes upon them, of preventing, at their own cost and by the exercise of their own power, such trade as they consider to be advantageous to the enemy.

We may remark, in the first place, that a rule that neutrals should themselves cease the exportation of such commodities as seem calculated to confer an advantage on one or other of the belligerents would be infinitely more burdensome nowadays than it would have been when Grotius and his successors laid the foundations of international law. Nations were then independent and self-supporting, and trade was relied upon ordinarily for little more than the supply of luxuries. But under that system of commercial intercourse which has its full expression of free trade, nobody can say what would be the consequences, either to neutrals or belligerents, of accepting the principle that neutrals must prohibit the exportation of all articles incidentally ministering to the prosecution of war. If the exportation of British coal to France were arrested, it is quite certain that a great variety of interests wholly unconnected with the manufacture of war material or the conduct of war would suffer the utmost distress; and a case is quite conceivable where the extremity of misery would result from a country's losing the whole supply of a particular commodity. What earthly right has a neutral to cause this misery? A belligerent, as public morality goes, may be morally justified in starving hundreds of thousands of the enemy's subjects by preventing importation; but

what possible moral justification can there be for a neutral's inflicting so cruel an injury on a friendly Power? The truth is that belligerents, in requiring neutral communities to aid them by limitations of the right to engage in trade, are really inviting these communities to commit what, even on the principles of warfare itself, may be monstrous crimes. And the injury to the neutral himself may incidentally assume enormous proportions. Who shall say what article, in the progress of military science, may not fall under the head of things to be prohibited in the same sense in which coal ought to come under prohibition? It is not so very many years ago since most people believed that gunpowder was going to be superseded by guncotton. If the new invention had by this time answered the expectations formed of it, cotton-wool would have stood on the same footing on which the Prussian government seeks to place coal; and both England and the United States might have been put under strong pressure to keep all unmanufactured cotton out of the hands of belligerents.—*Pall Mall Gazette.*

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## CONTRABAND OF WAR.

THERE are those who, in their anxiety to preserve an unimpeached neutrality in the pending struggle, would go the length of making the dealing in contraband of war an offence against our municipal law. A slight acquaintance with the decisions of our own Prize Courts would show the impossibility of giving practical effect to such views. In time of war, anything—the most innocent description of merchandise—may become contraband of war if a belligerent is in need of it, and that it is destined for his service. If, therefore, the Legislature were to give to Her Majesty in Council a discretion to declare any articles contraband of war, and such a discretion was exercised to any extent, it is obvious that the Maritime Commerce of the entire country might be placed under an interdict in order to satisfy one or other belligerent, and that the carrying trade must cease during the prevalence of hostilities. The expectation, therefore, that the carriage of contraband of war can be dealt with by municipal law in this or in any other country is illusory. It could not be realised without placing an absolutely intolerable pressure upon the commerce of neutral states. Belligerents, more particularly when they come to feel the progress of hostilities, are not always consistent or fair in their behaviour towards neutrals in this matter. For example, during the late American war the Federals were loud in their denunciations of this country because the *Alabama* and her companion ships happened to be built here, at the very time that they were getting their supplies of arms and ammunition, and even of shipbuilding materials, from this country. The Prussians complain bitterly, it is said, that we are furnishing horses to the French camp and coal to the French fleet, but they do

not hesitate to order war vessels and their machinery in the private yards and factories of this country. A neutrality such as that, which belligerents do not hesitate to demand when it suits their purpose, is simply impossible, and such, moreover, as belligerents, as a rule, disentitle themselves to demand. It is the duty of a neutral Government to see that its subjects do not participate in hostilities; beyond that, neutral commerce must be left to its free and independent action. The neutral carrier and the neutral merchant know, or are supposed to know, their particular risks, and it is for them to provide against them, or, if they think otherwise, not to incur them.—*Shipping and Mercantile Gazette.*

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## THE MONARCH AND THE CAPTAIN.

*Extract from Report.*

THE following is from the report of Admiral Symonds:—Both ships are very easy in a seaway, and can use their guns in any sea equal to that met with during the cruise, in which the force of the wind varied from 5 to 8; in fact, in any sea in which an action is likely to be fought. They both rise in a satisfactory manner in the sea. *Monarch* is dry on upper deck. *Captain's* low freeboard is often wet, though without inconveniencing anything. Her hurricane deck is dry. Both ships are capable of fighting their guns in as rough weather as an action would be fought in. The ship of low freeboard has shown no failing on this point, as I have tried her in firing in heavier weather than the double-reefed topsail breezes referred to in their lordships' orders. The forecastle in *Monarch* and *Captain* interfere with the most important and best fire, viz., right ahead and bow fire. The poop of the *Captain* interferes with the fire astern also. I have not found the height of wave interfere with the efficiency of the fire of the *Captain's* 12-inch guns, in a double-reefed topsail breeze, with corresponding sea they hit a target (a small cask and flag) distant 1,000 yards to windward, and in a treble-reefed topsail breeze and sea, shot were dropped 1,000 yards to windward, the sea not interfering in any way. In the practice in the double and treble reefed topsail breeze above alluded to, the *Captain* reported that she had sustained no inconvenience, and proved the cartridges were not swamped by firing her guns.

With the amount of canvas spread they are bad sailing ships, whilst the masts are so large as to interfere materially with their efficacy as steamers and fighting ships. The single screw of the *Monarch* does not much affect her sailing when placed vertically, but Captain Commerell believes it to have been the cause of her taking so long to wear. The double screws of the *Captain* materially affect sailing, particularly as at present they do not revolve when disconnected. In

a trial of sailing with the *Monarch*, with the screw of the latter connected (the *Monarch* could not disconnect her screw on this occasion), and the two ships consequently were on more even terms, the *Captain* appeared to have the superiority in sailing. The guns can be cast loose and used in any weather equal to that met with during the cruise, in which the force of wind varied from 5 to 8, or in any weather in which an action could be fought. The heaviest weather experienced during the cruise was on the night of the 29th of May, when the ships of the squadron were under close-reefed topsails; during the following day both ships were very steady. In answer to a signal at eleven p.m., 29th May, the *Captain* replied, "Ship behaves very well; could fight the guns." Vice-Admiral Sir R. S. Robinson, in his remarks on the reports of Admiral Symonds, complains that justice has not been done to the qualities of either ship by Admiral Symonds, who has hardly noticed the stowage of both. He praises the arrangements made by Captain Commerell, of the *Monarch*, and goes on to say:—The expenditure of coal in the *Captain* is reported as somewhat extravagant, and the fact that the *Captain* had to be coaled at sea is a significant commentary on the statement.

It has also an important bearing on the qualities of a ship as a sea-going cruiser. Sir Thomas gives it as his opinion that the low freeboard of the *Captain* does not in any way inconvenience the turrets in a seaway, and he says he has not found the height of wave interfere with the efficiency of the fire of her turret guns, though considerable quantities of water came over the upper deck. The facts in his report are no doubt correctly stated; a target was struck at 1,000 yards, and shot were dropped 1,000 yards to windward, in a sea corresponding to a treble-reefed topsail breeze; but it is perfectly evident that this could only be the case when the ship was upright on the top of a wave, by selecting that moment to fire without aim; shot no doubt will be dropped at any distance, due to the elevation given. It is, however, equally clear that when, to a ship 1,000 yards off, the turrets of the *Captain* wholly disappear, because the crests of waves hide them, being higher from the level of the sea than the turrets, that the ship cannot fire her guns, and that her hurricane deck, spars, etc., being visible to an enemy whose guns are higher than her's, she incurs some disadvantage, and Sir Thomas agrees with me in thinking that the lowness of freeboard exposes the *Captain* to serious risks from plunging fire through the decks.

So far, the experimental cruises of the *Captain* have been a decided success, and the further trial which is to take place warrants the opinion we have hitherto made that she is the ship of the day. It is rather to be regretted that a comparative trial is not made between her and a broadside ship, which we are confident would establish in all respects that she belongs to a superior class of vessel.—Sir Thomas Symonds' report on her qualities is pretty generally known throughout the service, and we now look forward for the Controller's report being made public; at the same time we trust that Captain Cole's reply will also be permitted to come before the public.

## Notes on the Navy.

There are now building at Portsmouth Dockyard the double turret monitor *Devastation*, 4,406 tons, the unarmoured screw frigate *Blonde*, 4,039 tons, and the gun-vessels *Comet* and *Blazer*, of the *Staunch* type, of 212 tons each, which represent the first really serious attempt at iron shipbuilding made at Portsmouth. Monitors of the *Devastation* class will not be ocean cruisers, but will be kept in port ready for any service. With 1,200 tons of coal in their bunkers, four 30-ton guns in their turrets, and engines of 800-horse power, they will be able to steam from England to Malta and back without coaling, and fight any antagonist they meet on their way. Six hundred men are employed on the *Devastation*, and if the present course is continued she will probably be ready for service by June or July next. The *Blonde* will be a swift unarmoured frigate of the *Inconstant* class, carrying ordnance capable of penetrating armour-plated vessels. The *Comet* and *Blazer* will be gunboats of exceedingly light draught, and carrying an armour-piercing gun. Eight of these vessels are to be built, six of them by contract in private yards. At Chatham the ironclad ram *Rupert* is in course of construction, but the *Raleigh*, 22, iron screw frigate cased with wood, and the *Snake* and *Scourge*, iron gunboats, each carrying one heavy gun, provided in the last navy estimates, have not yet been laid down.

Neutral as England stands at the present moment, preparations for an emergency in case of a change in attitude are being vigorously carried out. Recruiting is being pursued briskly, the dockyards are beginning to be spoken of, while the ironclads are being put in a sea-going state. Captain Sherrard Osborn, seizing the opportunity, writes to the *Times* advocating some recognition of the soundness of the turret principle. This principle, the gallant captain contends, has been thoroughly successful, but the prejudices of those in authority have hitherto prevented its development in the English navy. The trials have been severe, but despite the almost criminal opposition of those who should have known better, "the turret principle is acknowledged to be the true one for handling great rifled guns in a seaway; it affords a steadiness of gun platform as remarkable as it is advantageous, and any tyro can see the superiority for defence the hull must offer if covered everywhere with armour instead of being cut into patches by port-holes, as in the broadside ironclads." Captain Osborn says the Controller of the Navy dreads lest it should be proved that a good deal of public money has been wasted in the attempts made to produce something as good as Captain Cole's ship without frankly adopting the turret principle. If Prussia had six such ships as the rayed *Royal Sovereign* instead of her present ironclads, Captain Osborn thinks it would be an evil hour for the finest ships of the French fleet, if they were caught off the Elbe or in the Baltic.

Mere statistical information about the navy, then, is of no use. It will be necessary, therefore, to take those figures which we gave just

now as representing the present force of the navy and analyse them. Firstly, then, there are four hundred ships on active service, or ready for it—of what are they composed? To begin with, sixty vessels represent no fighting power whatever, being troop-receiving, gunnery, guard, and drill ships; sixty more are tugs and small vessels; ninety are gun-vessels and gunboats, one hundred and forty-three are wooden vessels of various rates, and, finally, forty-seven are ironclads. Of this fleet, as nearly as possible, half is in commission and half in ordinary, and, of course, the larger half is at home. Setting aside now the distribution of the fleet, what is its effective and available strength? Taking ironclads first, which, after all, represent our real war power at sea, we said there were forty-seven, but we must reduce this number to thirty-nine, as eight are, at present, incomplete, and cannot be finished for some time to come. There are then thirty-nine ironclads available for active service, of which twenty-six are at present in commission, five being at a long distance from home, on foreign stations, and the remaining twenty-two being on the Mediterranean station and at home. The other thirteen are either being fitted or repaired, but could be got ready in a short time. Indeed, as Sir Sydney Davies said the other day, in addition to the number of ironclads already in commission, eight more could be ready if necessary by the beginning of next week.

But what are the ironclads like, for mere figures will give, as we have already said, only an inaccurate idea of their power. Dividing them into the two natural branches of broadsides and turrets, we have six turret ships ready and thirty-three broadsides. Of these turret ships, the *Captain* and *Monarch* takes the first place, being built and armed in a more powerful way than any of the other ironclads, and having proved their right to the first place, both in regard to speed and sea-worthiness. The *Captain* has a burthen of 4,272 tons, and a nominal horse power of 900 horses. The central part of the hull is plated with iron of eight inches, which is reduced at the extremities. It has two turrets which are plated with nine and ten inch iron. The hull is only eight feet out of the water, when ready for action, and its guns are used in its two turrets. In each of these it will carry two 600 pounder twenty-five ton guns; and in addition there will be two six and a half ton guns, carried fore and aft on the upper deck. The *Monarch* differs in showing more front, as she has a higher freeboard, but her armament is the same, and in most other respects, as, for instance, armour plating, she is much the same. These two vessels, are then, the first vessels in the navy; then there is the *Hotspur*, which, however, is not ready yet, but is a large ram carrying 600 pounders and more heavily armed than the *Monarch*. The *Royal Sovereign* is another turret ship, which is very powerful, but cannot be compared with the *Captain;* and lastly, the *Wivern* and *Scorpion*, and *Prince Albert* are small vessels of no great speed or power. Of the three and thirty broadsides the most important are the *Hercules* and *Sultan*, which are very heavily plated and armed with eight eighteen ton guns, in addition to smaller ordnance; then there are five vessels

of the *Audacious* type, which carry ten twelve and a half ton guns each, in addition to smaller ordnance, and are plated with iron chiefly six inches thick, and each have a burthen of 3,774 tons. There are seven of the *Bellerophon* class, which have all armaments of fourteen guns of twelve and a half and six and a half ton guns; there are eight like the *Achilles*, which is heavily plated, very seaworthy, and speedy, of 6,121 tons, and carries an armament only slightly inferior to the *Bellerophon;* lastly, there are four ships of the *Warrior* class, which is now almost out of date, and seven small vessels.

This, then, is the constitution of our war fleet, and for fighting purposes, it is a magnificent collection of vessels. Their armaments are better, at all events as good, as those of any nation in the world, including efficient 600, 450, and 300 pounders. Their construction is varied, and they have in most cases proved themselves seaworthy. Such a fleet may be inefficient, it may be weak, but if it is half as it seems, the naval force available for the defence of our coasts has never been so powerful.

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## Royal National Life-boat Institution.

A MEETING of this Institution was held on Thursday, 4th August, at its house, John-street, Adelphi, Thomas Chapman, Esq., F.R.S., vice-president, in the chair. There were also present Sir Edward Perrott, Bart., W. H. Harton, Esq., Admiral M'Hardy, and R. Lewis, Esq.

The minutes of the previous meeting having been read, various rewards were granted to the crews of different life-boats for services on the occasion of shipwrecks on our coasts.

The life-boat *Lucy*, stationed at Whitby, was fortunately the means, on the 26th July, in conjunction with a steamer, of bringing safely into harbour the schooner *Mary and Jane*, of Sunderland, and her crew of four men, that vessel having struck on Whitby Rocks. She would inevitably have been wrecked but for the assistance of the life-boat, as, before the boat reached her, she was driving across the rocks into the broken water. On the following day the Blackpool life-boat *Robert William* went off to the yacht *Active*, of that place, which had been overtaken by the gale, and which was in a very perilous position on the Crusader sandbank, off the Lancashire coast. On arriving alongside, three out of the four persons on the vessel were taken into the boat, and then two of the life-boat men boarded the yacht, and she was run ashore half full of water. The owner was very thankful for the timely aid thus afforded him, as he felt sure that in its absence he and his friends would have been lost.

The life-boat *Godsend*, stationed at Chapel, on the coast of Lincolnshire, and which was only placed there on the 22nd July, soon

commenced her humane work, she having been launched four days afterwards, on the intimation that a vessel was in distress off Hulloft, about four miles from the life-boat establishment. As it turned out, however, the services of the life-boat were not ultimately needed, the crew of the wrecked sloop, which was the *Prince Albert*, of Wisbeach, having succeeded in reaching the shore in their own boat before the sea became so rough as it was when the life-boat went afloat and proceeded to the wreck.

The Civil Service life-boat at Wexford, Ireland, went out on the 21st July, in thick and blowing weather, to the aid of a vessel reported to be in distress, the sea being too rough for any ordinary boat to endeavour to save the crew. The life-boat's services were eventually not needed, as the vessel fortunately succeeded in getting out of her dangerous position, and was enabled to proceed on her voyage. The crew of the life-boat on the adjoining station at Carnsore had also assembled in readiness to take their boat to the help of the same supposed wrecked ship.

Rewards were likewise granted to the crews of different shore boats for saving life from wrecks on the coasts, and payments amounting to upwards of £2,000 were ordered to be made on various life-boat establishments.

The Ancient Order of Foresters had just presented through their secretary, Samuel Shawcross, Esq., the sum of £100, as their contribution for the past year in aid of the support of their life-boats, *Forester* and *Foresters' Pride*, which had been generously presented by the Order to the Society, and which are stationed respectively at Newquay, Cardiganshire, and at West Hartlepool. Messrs. Forrestt, the boat-builders, reported that they were about to forward to the Boulogne Shipwreck Association a self-righting life-boat on the plan of the Institution. A legacy of £10, bequeathed by the late Mrs. Wells, of Plymouth, had also been remitted to the Institution.

On the occasion of the inauguration of the Chapel (Lincolnshire) new life-boat station, on the 22nd July, a most imposing and interesting demonstration had taken place, and it was considered that at least 10,000 persons had assembled to witness the proceedings on the occasion.

Some reports having been read from the inspector and the assistant-inspector of life-boats to the Institution the proceedings then terminated.

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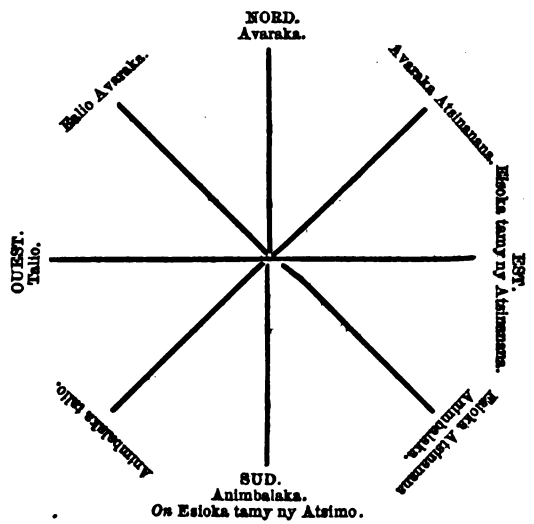
## JAPAN.

A NAVIGATION school in Japan is to be established, and Japanese officers, trained under the Europeans, are to be the teachers. The nobility are eagerly seeking nominations for their children as cadets.

## Names of Points on the Compass in the lesser isles of the Madagascar Coast.

### The Madagascar Compass.




66, Rue de Dublin,
Brussels, 6 July, 1870.

*The Editor of the Nautical Magazine.*

Dear Sir,

During my last voyage from Mauritius, as a passenger in the *Glenisla*, Captain W. Hall, one of your interesting and devoted contributors, I took a great delight in the perusal of the numerous volumes of the *Nautical*, in the captain's library.

I beg to hand you herewith the mariner's compass, as used on the coast and in the small islands of Madagascar, with the view of increasing the collection of compasses already published in your valuable magazine.

Have any of the drift bottles which we committed to the different ocean currents between October, 1869, and January, 1870, come to your address already?

I have the honour to be, Sir,
Your obedient Servant,
L. Estourgies.

[Our thanks are due for the compass. In reply to this query we have not yet seen any such bottle papers.—Ed.]

## Shipping Business at Japan.

From the *London Gazette*, August 2nd.

Board of Trade, Whitehall,
July 29th, 1870.

The Committee of the Privy Council for Trade have received a copy of rules relative to the transaction of shipping business in her Britannic Majesty's Consulate in Japan, published by order of her Majesty's Minister at Yeddo.

Her Britannic Majesty's Legation, Yeddo,
May 2nd, 1870.

I. *Entry of Ships.*—Masters or Consignees are required to enter their vessels at the Custom-house within forty-eight hours after arrival, and must deposit at the Consulate within that time the following documents:—Certificate of Registry, Articles of Agreement of Crew, Apprentices' Indentures, Port Clearance. Bills of Lading (if required). The receipt of the Consulate for these documents must be exhibited by the Master or Consignee on entering his vessel at the Custom-house.

II. *Clearance of Ships.*—Masters or Consignees must give twenty-four hours' notice at the Custom-house and also at the Consulate, of their wish to clear. On producing the Custom-house clearance at the Consulate, the documents deposited there on the entry of the ship will be returned, and a new Consular port clearance will be granted in place of the one handed in on arrival.

III. *Discharge of Seamen.*—No seaman can be discharged at any port in Japan without the sanction of her Majesty's Consul, and then only on condition that he hands into the Consulate a guarantee, to be approved by the Consul, that he will not become an expense to her Majesty's government.

No sanction can be given to the discharge of a seaman without the mutual consent of the master and himself, save by the order of a competent court, or by expiration of agreement.

An account of wages, in the form sanctioned by the Board of Trade, should be made up on board and given to the seaman twenty-four hours before his discharge; this account, a certificate of discharge, and the guarantee, must be brought to the Consulate at the time of discharge.

In the settlement of wages accounts, exchange for sterling money will, until further notice, be always computed at the rate of 4s. 6d. to the dollar.

IV.—*Engagement of Seamen.*—Masters of vessels engaging seamen, must come in person to hear the articles of agreement read out, see the men shipped, etc.

To facilitate shipment, masters engaging men from shipping agents or elsewhere, should come to a clear understanding with the men as to the nature of the voyage, time of service, wages, etc., before they bring them to the Consulate to sign the agreement.

V.—*Leaving seamen behind in hospital.*—Sick seamen unable to

proceed to sea in the vessels to which they belong will be taken charge of by the Consul on the day of the clearance of the vessel.

A form of discharge and the account of wages on form C 12, in duplicate, must be filled up and signed by the master; and the balance of wages, if any, due to such seaman must be paid into the Consulate.

A medical certificate stating the nature of the disease from which the seaman is suffering with the words "Not in a fit state to proceed to sea," inserted therein, will also be required.

Should the seaman be an inmate of the hospital, a receipt showing that his expenses up to the date of the clearance of the vessel, have been paid, must be produced.

V.—*Leaving seamen behind in gaol.*—The account of wages of a seaman left behind in gaol, together with a form of discharge, must be filled up and signed by the master; and the balance of wages, if any, due to such seaman, must be paid into the Consulate.

VII.—*Deceased Seamen.*—The account of wages on Form C 15, of a seaman who has died during the voyage or in port, provided the vessel is not bound to a port in the United Kingdom, must be filled up and signed by the Master; and the balance of wages, if any, due to such seaman must be paid into the Consulate.

Should the vessel be bound to the United Kingdom the seaman's wages can be accounted for at home; but a note of this will be made by the Master in the official log-book, and by the consul on the articles of agreement.

VIII.—*Seamen's Effects.*—The effects of any seaman left behind in hospital or gaol from his vessel must be sent to either one or the other, as the case may be, and the receipt obtained for them, which must be produced at the Consulate.

If a vessel arrives in port having the effects of a deceased seaman on board, or if a seaman dies in port before the departure of his vessel, and such vessel is bound direct to the United Kingdom, the effects will be examined, and if it is found that they are of such a nature as not to deteriorate in value by being kept, they will be left on board for conveyance to the United Kingdom.

When it is found on examination that only a portion of the effects would deteriorate in value by being kept, only such portion will be sold, and the remainder will be forwarded to the United Kingdom as directed above.

IX.—*Seamen absent without leave and Deserters.*—When a seaman is absent without leave, the Master should at once report his absence at the Consulate. Should he fail to do so within twenty-four hours, the seaman will not be treated as a deserter, unless special circumstances appear to the Consul to warrant it. Every such report will be entered by the Consul in the deserters' book, and notice of the desertion will at once be forwarded by him to the police authorities, in order that prompt steps may be taken for the apprehension of the man.

Masters of British ships are hereby reminded that leaving behind a seaman or apprentice in any port out of her Majesty's dominions where a British Consular Officer is stationed, without obtaining the

sanction of such Officer, may be punished as a misdemeanour; and that all expenses incurred in relieving a seaman or apprentice so left behind may be recovered from the master or owner of the ship concerned.

X.—*Harbour Regulations.*—The attention of ship-masters is drawn to the Harbour Regulations, which are exhibited at the Consulate Office.

XI.—*Forms.*—The necessary printed forms, referred to in the foregoing rules, will be supplied on application at the Consulate.

XII.—*Office hours.*—The Consulate will be opened daily (Sundays and holidays excepted) from 10 A.M. to 4 P.M.; but it is desirable that the engaging and discharging of seamen should be transacted during the forenoon only.

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## NAUTICAL NOTICES.

### COMORO ISLANDS.

ON the navigation of the Comoro islands and Zanzibar, with its neighbourhood, by Lieut. H. C. Taylor, R.N., of H.M.S. *Cossack*, November, 1869.

[*All Bearings are Magnetic. Variation* 10° *Westerly in* 1870.]

*Johanna Road.*—The beacon marking the anchorage ground in Johanna road is difficult to see until quite close in, being partly overgrown with bushes, and one of the numerous huts near the town is also built close alongside of it. A better mark is a bluff point of rock, about 400 yards west of the beacon, having a large whitewashed target on its face used by ships of war.

*Pomony Harbour.*—The beacons mentioned in the African Pilot, page 253, do not now exist, and the buoy on the Middle ground is also gone. A beacon is much wanted to mark the centre line of the harbour. The anchorage is limited, and vessels likely to remain at Pomony should keep the factory chimney on a N.E. by E. bearing, not anchoring in less than twelve fathoms.

*Current.*—The *Cossack* during her passage from Zanzibar to Johanna in December, 1869, experienced the full force of the westerly current which sets past Comoro island. The day before making that island a course was shaped to pass thirty miles to windward of it; the *Cossack* experienced forty miles of current then, and seventy miles on the following day, setting nearly west, and forcing the ship to leeward of the islands.

### ZANZIBAR.

*The Current* in the vicinity of Latham island mentioned at page 190 of the African Pilot was also experienced by the *Cossack*, setting her, in November, 1869, to the northward, against a north-east breeze, about thirty-two miles in seven and a half hours.

*Zanzibar Harbour.*—Lieutenant Taylor recommends lying at single anchor at a short distance off shore in preference to mooring close in, to avoid the fetid and pestilential odours from the town, which at this season of the year (November) are not only disagreeable but unhealthy.

To the west and N.W. of Bawy island the sea appeared to be very foul, numerous patches of coral showing in all directions.

*Tumbat Island.*—At page 194, line 1, of the African Pilot the position given is for the south instead of the north extreme of Tumbat island.

There is a passage between Benoth, the small island off the eastern side of Tumbat, and Zanzibar, but none exists between Tumbat and Benoth. The reef from Benoth island extends to the N.W. and surrounds Moina island, connecting it with Tumbat. The shoal on the chart to the N.E. of Tumbat could not be found.

Vessels anchoring off Tumbat island should not close the two southern points, which lie nearly east and west of each other.

## Homeward Route from China.

Remarks on the homeward route from China through the China Sea and the Strait of Sunda from the log of the British ship *Harkaway*, Captain David W. Stephens, received through the Meteorological Department of the Board of Trade.

From Hong Kong, bound through the Bashee Channel, or any of the channels between Formosa and Luzon, from March to June inclusive, but more particularly in March and April, in brisk N.E. winds and a strong westerly current, it frequently takes a week beating along shore to reach Breaker point before standing off:

Whereas, if after clearing the Lema channel, the ship stands off on a wind clean full to the S.E., she would soon lose the westerly current, and on nearing Luzon would find the wind more easterly and sometimes from S.E., enabling her to tack to the N.N.E. with a strong current in her favour, and thus would probably get to the eastward of Formosa in less time than it would have taken to reach Breaker point by keeping along the coast of China.

Vessels leaving the coast of China or Manilla and for Sunda Strait in March, April, or in the early part of May might expect a tedious passage down the China Sea if proceeding by the old route which passes Pulo Sapata, particularly if they do not sail before the 5th or 10th of April:

Whereas if the track be taken along the coast of Luzon, down the Palawan passage, along the coast of Borneo, past Direction Island, round Soreutou, and through the Carimata Strait, passing close round the North Watcher, and on for St. Nicholas Point on Java, they are likely to carry easterly winds, with fine weather, and a smooth sea the whole way, thus making a direct course, and will avoid calms. The current will also be more favourable until May is well on.

In approaching Sunda Strait the Java side should be kept aboard in May, as then the winds are light, those from S.E. prevailing at night, and from N.E. during the day; a precaution which will prevent the vessel being carried by the current to the westward of the Button Islet; this current runs constantly to the S.W. in the middle of the strait. It is checked by the short flood, but runs strong with a long ebb.

With reference to the above directions for making the passage from China, and to prove the advantages of the eastern route, it may be stated, that in April, 1861, two American ships sailed from Fu-chau-fu, one proceeded by Pulo Sapata on the west side of the China Sea, the other by the Palawan passage and Carimata Strait; the latter ship passed Anjer twenty days before the other.

The *Harkaway*, on her passage in April and May, 1862, carried an easterly wind the whole way down, and had no occasion to anchor.

## Dover Bay.

Relating to the anchorage off Dover, by Staff Commander John Richards, H.M.S. *Lightning*, June, 1870.

[*All Bearings are Magnetic. Variation* 20° *Westerly in* 1870.]

Vessels using the anchorage in Dover Bay in westerly winds should avoid anchoring with the end of the Admiralty Pier on a S.W. by W. bearing: for on this bearing, between the tidal periods of five hours flood and half ebb, the eastern stream carrying the westerly swell with it up channel and running close past the end of the pier with great velocity, there meets the eddy or out-flow from Dover Bay, which, opposing the progress of the advancing swell, throws up a short turbulent sea along the line of contact in a N.E. by E. direction from the pier head, causing vessels to roll and surge about, to the risk of fouling anchors and snapping chains.

Large vessels should therefore anchor outside this line in not less than 5¼ or 6 fathoms at low water; with the keep of Dover Castle within or westward of the Castle jetty, one-third the distance towards the Boundary groyne, bearing N. ¼ W. and the end of the Admiralty pier West or W. by S.: Shakspeare Cliff will then be nearly in line with the inner landing stage of the Admiralty pier.

Small vessels should anchor with the entrance of Dover Harbour open, and not farther out than to have the end of the Admiralty pier bearing S.W. by S.

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## The Red River.

Manitobah Lake, which lies north-west of Fort Garry, and has given a title to the province formed out of the Red River region, derives its name from a small island from which, in the stillness of night, issues a "mysterious voice." On no account will the Ojibways approach or land upon this island, supposing it to be the home of the Manitobah—"The speaking God." The cause of this curious sound is the beating of the waves on the "shingle," or large pebbles lining the shores. Along the northern coast of the island there is a long low cliff of fine-grained compact limestone, which under the stroke of the hammer, clinks like steel. The waves beating on the shore at the foot of the cliff cause the fallen fragments to rub against each other, and to give out a sound resembling the chimes of distant church bells. This phenomenon occurs when the gales blow from the north, and then, as the winds subside, low, wailing sounds, like whispering voices, are heard in the air. Travellers assert that the effect is very impressive, and have been awakened at night under the impression that they were listening to church bells.

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## To Correspondents.

Mr. D. Boeke will find his interesting letter on Java Teak in our present Number, shortly to be in his possession.

Circumstances which we could not control have compelled us to reserve our usual Lighthouse Table to our next Number.

THE

# NAUTICAL MAGAZINE

AND

# NAVAL CHRONICLE.

## OCTOBER, 1870.

### The Loss of H.M.S. Captain with her Officers and Crew, *Off Cape Finisterre.*

One of the most awful results of the present iron age of ship building has occurred since our last, in the foundering of Her Majesty's ship the *Captain* off Cape Finisterre. The whole event is of that appalling nature, that it seems too dreadful to be true, that a ship of war which was considered to be one of the finest specimens of naval architecture in Her Majesty's Service should have been literally capsized, or thrown on her beam ends, from which position she turned keel uppermost, and then went down stern foremost. This dreadful event was thus announced to the British Public on the morning of the 10th September, in the following letter from Vice-Admiral Sir Alexander Milne, which appeared in the *Daily News*, and communicated to that paper by the Admiralty.

Admiralty, Friday, September 9th, 1870.

The following distressing telegram has been received, by way of Vigo, at the Admiralty, with the deepest feeling of pain and regret:

"From Admiral Sir Alexander Milne, Her Majesty's ship *Lord Warden*, off Cape Finisterre, September 7th, 1870, 8 p.m.

"I very much regret to have to send painful intelligence. Her Majesty's ship *Captain* must have foundered in the night. She was close to this ship at two this morning. Sudden south-west gale: very heavy squalls. At daybreak the *Captain* was missing. This afternoon her boat (or boats) and spars found.

"All have unfortunately perished.

"The *Inconstant* sails to you with report."

Here was enough to touch the springs of affection with no light hand—to pierce the hearts of many who would be ill prepared for such

intelligence with all its sad reality, who, from the success which had attended the more recent trials of the *Captain*, would be expecting very different tidings; and at Portsmouth where the vessel was commissioned, the sad intelligence, we are told, caused the most intense excitement: many hearts were saddened, and consternation took possession of all. It is difficult to conceive the possibility of the facts which became gradually developed. We will not, however, anticipate them, but relate them as they became revealed to us. The next intelligence was a rumour of the safety of a boat with some of her men, and the following telegrams concerning them appeared in the public prints.

Madrid, Saturday, September 10th.

Eighteen seamen of the *Captain* arrived in a boat at Corcubion on Wednesday night. The rest of the boats were seen bottom upwards or staved. The *Monarch* has been sent to Corcubion.

(REUTER'S TELEGRAM.)

Madrid, Friday, September 9th.

A ship's launch has arrived at Port Finisterre with eighteen sailors from Her Majesty's ship *Captain*. The rest of the crew were lost, not a single officer being saved.

And at the same time as the foregoing was published, appeared the following further communication from Admiral Sir Alexander Milne.

Her Majesty's ship *Inconstant* arrived at Devonport this morning (10th instant) with a report of the loss. All particulars will be immediately communicated.

Admiralty, September 10th.

The following despatch, giving additional particulars, has been received at the Admiralty from Admiral Sir Alexander Milne:

*Lord Warden*, at Sea, off Cape Finisterre,
Wednesday, September 7th, 1870.

Sir,—It has been my painful duty to forward by Her Majesty's steam vessel *Psyche* to Vigo the following telegram, transmitted to the Lords Commissioners of the Admiralty, reporting the sad loss of Her Majesty's ship *Captain* with all hands, viz.:

"Very much regret sending painful news. *Captain* must have foundered in the night. She was close to this ship at two this morning; sudden S.W. gale. Very heavy squalls. Daybreak, *Captain* missing. This afternoon her boats and spars found. Crew unfortunately perished. *Inconstant* sails to-morrow morning with report."

I beg leave to transmit to their lordships full and early details of this most disastrous event, and I therefore send the *Inconstant* to Devonport with this despatch. Yesterday morning, the 6th instant, I went on board to inspect the *Captain*, with Captain Brandreth and my flag lieutenant, and visited most minutely every part of her. At one p.m. a trial of sailing with the ships of the squadron named in the margin [*Lord Warden*, *Minotaur*, *Agincourt*, *Northumberland*, *Monarch*, *Hercules*, *Inconstant*, *Warrior*, *Bellerophon*, *Bristol*], was commenced and continued until five o'clock, when the recall was made. The direction of the wind was S. by W. Force about six knots—some of

the ships carrying their royals during the whole time, *Captain* included. At six o'clock the breeze had freshened, and the trial of the *Captain*, which at first was nine and a half knots, increased to an average from eleven knots to thirteen knots. The sea was washing over the lee side of her deck, as she had a swell on her lee bow, the lee gunwale of deck being level with the water. I returned to the *Lord Warden* at half-past five p.m.

Being close to the rendezvous (twenty miles west of Cape Finisterre), the squadron was again formed with eight divisions—the *Lord Warden*, *Minotaur*, and *Agincourt*, *Agincourt* leading, the *Captain* being next astern of the *Lord Warden*. The signal was also made to take in two reefs and send down the royal yards, and the ships stood to the west-north-west under double reefed topsails, foretopmast staysail, and foresail topgallant sails furled, steam ready to be used as required, force of the wind about six to seven.

At eight and ten p.m. the ships were in station, and there was no indication of a heavy gale, although it looked cloudy to the westward. At eleven the breeze began to freshen with rain. Towards midnight the barometer had fallen and the wind increased, which rendered it necessary to reef, but before one a.m. the gale had set in at south-west; our square sails were furled. At the time the *Captain* was astern of this ship, apparently closing under steam. The signal "Open order" was made, and at once answered, and at a quarter-past one a.m. she was on the *Lord Warden's* starboard or lee quarter, about six points abaft the beam.

From that time till about half-past one a.m. I constantly watched the ship; her topsails were right close reefed, or on the cap; her foresail was close up (the mainsail having been furled at half-past five p.m.), but I could not see any fore and aft sail set. She was heeling over a good deal to starboard, with the wind on her port side. Her red bow light was all this time clearly seen. Some minutes after I again looked for her light, but it was thick with rain, and the light was no longer visible. The squalls of wind and rain were very heavy, and the *Lord Warden* was kept by the aid of the screw and after trysails, with her bow to a heavy cross sea, and at times it was thought that the sea would have broken over her gangways.

At a quarter-past two a.m. (the 7th instant), the gale had somewhat subsided, and the wind went round to the north-west, but without any squall; in fact, the weather moderated, the heavy bank of clouds had passed to the eastward, and the stars came out clear and bright; the moon, which had given considerable light, was setting. No large ship was seen near us where the *Captain* had been last observed, although the lights of some were partly, at a distance.

When day broke the squadron was somewhat scattered, and only ten ships instead of eleven could be discerned, the *Captain* being the missing one. We bore up for the rendezvous thinking she might have gone in that direction, but no large vessel being in sight from the masthead I became alarmed for her safety, because if disabled she ought to have been within sight, and if not disabled in company with

the squadron, and I signalled the following ships to proceed in the direction indicated, to look out, viz.:—*Agincourt*, to the south-west; *Monarch*, south; *Warrior*, S.E.S.; *Inconstant*, S.E.; *Hercules*, S.S.E.; *Northumberland*, east; *Bristol*, N.E.; *Bellerophon*, to the north by east; *Minotaur* also went N.E. These vessels proceeded about ten to eleven miles, but nothing was seen of the missing ship.

The greater part of the ships were recalled and formed in line abreast, and steered at three or four cables apart to the south-east looking for any wreck. The *Monarch* first picked up a topgallant-yard of the *Captain*, the *Lord Warden* another with sails bent. Then some studding-sail booms, and on the *Psyche* joining me from Vigo at sunset she reported having passed two cutters painted white bottom up, with a large amount of wreck, apparently the hurricane deck, amongst which was found the body of a seaman, with "Rose" marked on his flannel.

I have thus stated all that occurred under the eyes of the flag-captain and myself, and I much regret to say that I can come to no other conclusion than that the *Captain* foundered with all hands on board, probably in one of the heavy squalls between 1.30 and 2.15 a.m. of this morning (7th instant), at which time a heavy cross sea was running; but how the catastrophe occurred will probably never be known. I had the most perfect confidence in Captain Burgoyne, Commander Sheepshanks, and the executive officers with whom I had come in contact. Captain Burgoyne himself was a thoroughly practical seaman, and it is impossible that the *Captain* could have been better commanded. The service will mourn the loss of an officer of much ability and promise. I regret, also, Captain Coles should have shared the same fate. He had been several passages in his newly-constructed ship, and took a deep interest in all that concerned her.

I greatly deplore the sad event, which has cast a deep gloom on the whole squadron. I have, &c.,

(Signed) A. W. Milne, Admiral.

*Minotaur* lost sight of *Captain* about 1.45 a.m.

*Northumberland* last saw *Captain* between nine and ten p.m., before the heavy rain set in.

*Agincourt* saw *Captain* last about eleven p.m.

*Inconstant* saw *Captain* last about 10.15 p.m.

*Warrior* saw *Captain* last about 10.30 p.m.

*Bristol* saw *Captain* last about ten p.m.

*Psyche* picked up one dead body and passed two cutters bottom up and several other spars.

*Monarch* picked up main topgallant-yard and topgallant studding boom sail.

*Bellerophon* picked up bow roller of boom boat, white boat, a launch, and six-oared boat.

*Agincourt* picked up part of cutter, two signal lockers, upper deck hatchway, broken gaff, and topmast, deck planks, oars, and mahogany office fittings.

*Minotaur* picked up two launch's oars, pinnace's sail in cover, and ensign.

*Inconstant.*—Two oars and mahogany board and hammock netting.

*Warrior* picked up skylight, port, and small gear of turret and cabin-windows, sashes, and pieces of inside lining.

*Bristol* picked up two oars, second cutter's breakers, and two pieces of hammock-netting.

*Hercules* picked up two swinging booms, jib-boom, three middling sail booms, all marked "*Captain;*" royal yards, standard, compass, splinted oars, and part of a boat's upper deck grating; and half of bowsprit, with sword-belt, and handkerchief entangled.

*Lord Warden.*—Mizen topgallant-yard, with sail bent, and office-desk and portion of small grating.

(Signed) ALEX. MILNE, Admiral.

The following is a list of the officers of H.M.S. *Captain*, according to the official Navy List of September, 1870:—Captain, Hugh T. Burgoyne; Commander, Richard Sheepshanks; Lieutenants, Charles Giffard, Francis B. Renshaw, Richard B. Purdon, Robert F. Castle, and Edward W. F. Boxer; Second Captain Marine Artillery, Richard A. Gorges; Lieutenant—Marines, John A. A. Eckford; Chaplain and Naval Instructor, Rev. Edmund S. Powles; Staff Commander, Robert J. C. Grant; Paymaster, Julian A. Messum; Assistant-Paymasters, Richard Cornish and Arnold West; Chief Engineer, George Rock; Staff Surgeon, Matthew Burton, M.D.; Surgeon, Robert Purves; Assistant Surgeon, John Ryan; Sub-Lieutenants, Edward P. Hume, Lord Lewes Gordon, Herbert F. Murray, Douglas E. D. Curry, Alexander K. B. Granville; Arthur O. R. B. Ternan; and Charles E. Goldsmith; Navigating Sub-Lieutenant, Arthur E. Tregaskis; Engineers, William C. Moreton, Peter Baldwin, Frederick Pursell, George H. Barnes, and John H. Willis; Midshipmen, Gerald W. Trevor, Leonard G. E. Childers, William P. Taylor, Allan C. T. Mann, Hon. Arthur T. N. Baring, Henry W. Gordon, Robert L. Mayne, Alfred A. Ashington, Hon. William R. Herbert, Edmund F. Goodfellow, and Edmund D. Ryder; Assistant Engineers (first class), George P. Gardiner, Frederick J. Baron, and Thomas W. Curtis; Assistant-Engineers (second class), Alfred Parkis and George Harding; Gunner (second class), James May; Boatswain, Robert Davie; Carpenter, Charles Dyer; Assistant-Clerks, William V. R. Hugh and Alfred W. Glanville.

The *Captain* had a complement of more than 500 officers and men. Captain Cowper Coles, the designer of this ship, was on board, and has been lost. Mr. Childers has lost a son, so has Lord Northbrook. Sir Baldwin Walker has not only lost a son-in-law in Capt. Burgoyne but has to bewail the death of a son, who had gone on the cruise with his relative as an amateur.

Our Chatham correspondent writes:—"The intelligence of the foundering of the *Captain* in the Bay of Biscay has created the most profound sensation among all classes at this port, where many of the

officers and crew have numerous friends and relatives, and to which many of the crew belong. Lieutenant J. A. A. Eckford and the detachment of Royal Marines Light Infantry serving on board belonged to the Chatham division, and the untimely fate of their comrades is keenly felt by the officers and men at head quarters. With the single exception of the *Monarch*, the *Captain* was undoubtedly the most powerful turret ship belonging to the navy of any power in the world, and during the late experimental cruise proved herself in every respect an excellent seagoing turret vessel, the reports respecting her made by Admiral Sir T. Symonds, K.C.B., in command of the Channel Squadron, being of the most favourable character. The cause of the sad calamity seems therefore the more inexplicable, especially as the *Captain* had previously proved herself capable of encountering and weathering the heaviest gales. The *Monarch*, which is a somewhat larger turret ship than the *Captain*, with two turrets, and carrying the same number of guns of a corresponding weight, recently crossed the Atlantic twice, and although she several times encountered more serious weather than that in which the *Captain* appears to have gone down, no apprehensions were at any time entertained as to her safety. Pending, therefore, the full particulars from the few survivors, the probable cause of the lamentable disaster must be sought for in other quarters, by means of a comparison between the *Captain* and *Monarch*, which latter was considered among naval architects her rival. The *Captain* had a remarkably low free-board or height above the water, the water-line to her upper deck being barely 9ft., whereas in the *Monarch* the upper deck is fully 14ft. above the water-line. When designed by Captain Coles, the officials at the Admiralty maintained that, for an ocean-going turret ship, a free-board of only 9ft. was too little, and then insisted that the *Monarch*, which was then building at Chatham, should possess a free-board of at least 14ft. to render her safety something more than a mere hazard. In the opinion of naval engineers the cause of the calamity is to be traced, therefore, to this very lowness of free-board, not a few entertaining the belief that the heavy tripod masts, with which the *Captain* was fitted, tore open her decks, which with her insignificant height out of the water, rendered her an easy prey to the waves. It is also worthy of remark that, although the *Captain* was about 1,000 tons burden less than the *Monarch*, both vessels were provided with the same description of armament—namely, two 22-ton guns in each turret, the armour-plating on the turrets being eight inches in thickness in both vessels, with two thicknesses of 'skin' plating and 7-inch horizontal frames. It will thus be seen that, together with her turrets and turret-guns, the *Captain* carried an enormous weight at no great height above the water, while her buoyancy was correspondingly reduced. The fact of only eighteen persons belonging to the vessel, which contained a ship's company of upwards of 500 officers and men, being saved, points to the suddenness of the calamity, and would seem to show that the *Captain* must have been engulphed literally instantaneously. The *Captain* was built under the personal superintendence of Capt. Cowper

Coles, at the establishment of Messrs. Laird Brothers, Birkenhead, and was considered the finest specimen of naval architecture ever constructed by that firm."

Our Portsmouth correspondent writes that the grief of the relatives of those on board the *Captain*, on ascertaining the loss of that vessel, was heartrending in the extreme, and that the whole town wore an aspect of sadness and sorrow.

Our Southampton correspondent says the *Tanjore*, which arrived here last night, brought one of the most valuable cargoes ever landed at this port. It was estimated to be worth £1,500,000, upwards of a million of which was in specie. She passed Her Majesty's ship *Captain* a few hours before the latter was lost. It was believed on board the *Tanjore* that some of the top gear of the *Captain* must have been blown overboard by the severe south-west gale which was blowing on the 7th, and got entangled in the fans of her screw. Upwards of two hundred persons have landed here within the last few hours from Havre, and a vessel has been chartered to bring over here several hundred of persons from the same port. Many of those who have landed declare that the reason they left Havre was because of a prevalent opinion that the Prussians would avoid Paris, scour the country, and destroy the seaports.

The *Daily News* thus expresses itself on this painful subject:—

One single ray of light shines through the gloom which the national loss of the *Captain* has thrown over the Naval Service and the whole nation, and that is the heroic conduct of her beloved and lamented Commander. Calamity alone brings out true heroism, and it is at least a comfort to all of us to know that whenever such calamities happen there is always the heroism to bring out. Captain Hugh Burgoyne was on the bridge till the topsails of his ship were under water. In that moment of supreme danger his first care was for others—his last for himself. His men, one and all, were ready and eager to risk their lives to save him, but his last word of command to them was to bid them save themselves. This sublime self-forgetfulness probably cost this brilliant officer his life; but it has made his example, one which will long be cherished among the glorious records of the British Navy. "Greater love hath no man than this." It cannot be necessary to point out that our gallant sailors who have met their death in this disaster have families dependent on them, and have now left those families as a legacy to their country. They have as truly died in their country's service as though the *Captain* had been sunk in a naval engagement, or they had been shot down upon her decks. There is less excitement, less glory, in a death incurred in the perpetual strife of human skill and courage against the blind forces of Nature; but such a death is as honourable as though it had happened in the strife of man with man. So long as our Empire is an Empire of the sea, it will only be maintained by perpetual conflict, and therefore by perpetual sacrifice; and the gallant men who take their lives in their hands to maintain that conflict must always be assured that if they fall their families will not be left uncared for. It is difficult to

conceive the wide-spread ruin such a calamity as the loss of five hundred men involves. It is not merely so many families plunged into mourning; but a large part of those families are actually deprived of their living. Widowed mothers and decrepit fathers; wives and children, brothers and sisters, whose living was earned by a gallant son, or brother, or father, on board the *Captain*, heard of her loss not as a bereavement only, but as the loss of their all. They may, however, be safely left to the public care. It only needs that the public should be reminded of them, and there can be no doubt that those who are so nobly helping the wounded abroad will spare some of their charity as soon as they know that there are these sufferers at home who equally need and equally deserve their aid.

There is so much important additional intelligence on the subject, and desirous as we are of collecting it all, we must yet quote some further extracts from the *Western Morning News*. This tells us that—

"All went well up to the 6th of September, on the afternoon of which day Admiral Milne and his staff went on board the *Captain* to witness from her a trial of sailing, in which she was to take part, with the *Monarch*, *Inconstant*, and *Bristol*. The gallant admiral remained on board the vessel until the evening, happily declining the invitation of the officers to remain to dinner, and go on board his own ship next morning. When he left the *Captain*, at about seven p.m., the sea was pouring over her upper deck in cataracts, so much so that the admiral's galley was nearly swamped whilst alongside. It is reported that when he arrived on board the *Lord Warden*, Admiral Milne was heard to say, 'Thank God! he was on board his own ship again.'

"At seven o'clock the *Captain* communicated with the fleet by signal, and this was the last time she ever did so, as night soon after closed in. About this time a gale sprung up from the S.W., which all the vessels weathered out up to 1.30 on the morning of the 7th. At that time the *Captain* was seen from the *Lord Warden* steering N.N.W., under treble-reefed fore and main-topsails and foretopmast staysail. Fourteen minutes after, at 1.44 a.m., a sudden tremendous squall struck the fleet, the wind having shifted round to N.N.W. Nearly all the vessels were 'taken aback,' and a signal was made from the *Lord Warden* to 'wear ships.' The squall lasted for two hours, causing considerable loss to all the ships in the topsails, which were split and blown away. When the day dawned all the vessels of the fleet were in sight with the exception of the *Captain*. It was then presumed that when the wind shifted and the signal to 'wear' was given she had not observed it, and standing on was now out of sight.

"Two theories were advanced in the fleet to account for the calamity. One, supported by Sir Alexander Milne, is that when the wind shifted at 1.44 on the morning of the 7th, the *Captain* was taken aback, and one sea swept over her; that before she had time to 'shake herself free' from it another dashed on her, sweeping away all her upper works and her poop—which, by the way, from its shape, had been called 'the

coffin'—and that she then filled immediately and sunk. The other opinion is, and that is agreed in by many officers of great experience in the fleet, that when 'aback' the sea burst in her large stern port—which was much larger than that in any other ship—and that she went down stern foremost. The manner of her loss will only be known when the survivors, who have been landed near Corunna, are able to tell the tale. It is evident that her destruction came upon her with fearful suddenness. Though in the midst of a large fleet she had not time to fire a rocket or make any signal of distress. Her boats, with the exception of her steam pinnace, a lifeboat, which has since arrived with the eighteen survivors at Corcubion—were picked up at sea by ships of the fleet."

The *Hampshire Telegraph* publishes the following further details of the loss:—

"Captain Burgoyne was on deck at the time when the accident occurred. He was dressed in his uniform cap, pilot cloth reefer, and an old pair of trousers. The ship was under steam and sail, with her double-reefed fore and main topsail, fore staysail, and the fore top-mast staysail set.

"When the middle watch was called at twelve o'clock the weather was exceedingly squally, and the captain remained on deck giving orders. At five minutes past twelve the watch was piped to muster, and two minutes afterwards the men, with the exception of the marines, were on deck, and those who had been relieved were below in the act of turning in. As soon as the new watch were on deck, and before their eyes were perfectly open, the captain gave orders to man the weather foretopsail brace, and then to let go topsail haulyards and lee topsail sheets. Subsequently the order was given to let go the weather topsail sheets. No sooner had the latter order been given, and ere it could be executed, a terrific sea struck the ship on the weather beam and swamped her decks. The men of the watch, with the captain, were now in the water, the ship being over on her side and trembling violently in the endeavour to right herself. As soon as the men could see what was going on around them, the ship was floating with her keel uppermost, and nothing could be heard of the crew.

"They were now fighting for life with the sea, and after about ten minutes or a quarter of an hour had elapsed, one of the party saw the ship's steam pinnace lifeboat some yards off keel upwards. They then swam with considerable difficulty to the pinnace, the captain, Mr. May, and an able seaman named Heard reaching it together. Heard had held on the captain by the collar of his jacket. With assistance, the captain succeeded in getting on to the pinnace with the rest of the party, and caught sight of a ship not a great distance off, which they believed to be either the *Bellerophon* or the *Lord Warden*. At this time the *Captain* had disappeared altogether. Urged by the gallant captain, the men shouted as loud as they could, 'Ship ahoy!' for a considerable time, but got no response. So frantic were their cries for help that the men became perfectly hoarse, and the majority

lost their voices altogether for a time, and endeavoured to prepare themselves for what they conceived to be their fate, namely, a watery grave with the rest of the unfortunate crew. All this time the pinnace was being tossed heavily, and the men were frequently washed from its keel into the mass of seething waters around them, but succeeded in getting on again, with what little assistance their fellow-sufferers were in a position to render them.

"After being tossed about for some time in this way the men saw the ship's second launch floating towards them with two men in, and raised feeble shouts to attract their attention. When the launch came to within a short distance of the pinnace Captain Burgoyne shouted out, 'Hold to your oars, my men; hold to your oars,' which order was, as far as possible, carried out, and the launch got close to the pinnace, the men leaping joyfully on board her. The sea frequently parted the two boats, and ere Captain Burgoyne and the noble seaman Heard, before referred to, could get from the pinnace, she was some little distance off. Heard stuck by the captain, who remained, sad looking, but calm, and as firm as if on board the ill-fated ship he had commanded. Heard took hold of him by the hand, and said, 'Come, sir, let's jump!' to which he replied, 'Save your own life, my man.' Finding that the distance between the launch and the pinnace was rapidly increasing, the seaman said, 'Will you come or not, sir?' when the captain replied, 'Jump and save yourself. I shall not forget you some day.' The seaman jumped, and with difficulty reached the launch, and was hauled on board, and within a few minutes the pinnace and the captain were lost sight of."

We turn now from all this sad detail to ask why so unprecedented an occurrence should take place as that a ship capsized should *turn over*, so that her keel should actually be uppermost; and while for two minutes in that position, she should actually sink stern foremost? It is an occurrence of which we have never before heard. And we naturally enquire, are the rest of our iron ships safe. Would not the same thing occur with them all? It would be well if we could assure ourselves that they would not follow the example of the *Captain*. Where was the centre of gravity of the unfortunate *Captain?* She herself furnishes the reply: it was so near to her upper deck, her turrets with their guns, that they turn her keel, the lightest part of her uppermost,—even out of the water. It seems unprecedented. And yet the *Captain* has been repeatedly under trial, reported on, considered to be perfection. And yet after all a mere gale of wind brings out this stupendous, this most alarming fact. She gets beyond her bearings, she turns over, so as literally to bring her with her *keel uppermost.* She "trembles violently" after being struck by a sea "in the endeavour to right herself," and she is not more than two minutes in that dreadful position before she sinks stern foremost. Such an event we believe to be without precedent. But we do trust that all future contract-built ships will undergo the test of their centres of gravity being found with all their weights on board when

ready for sea. A court martial or of enquiry we are informed as usual on all such occasions, is to take place; when it is possible it may appear why the unfortunate *Captain* should have shewn her keel before she foundered.

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## THE SUEZ CANAL,

*By Lieutenant Don Isidro de Posadillo y Posadillo.*

THE communication by the Maritime canal of Suez being now opened, it may not be uninteresting to give some details of this colossal work of the nineteenth century, not only by the Egyptians, but also by the French; one of whose subjects, has made incredible sacrifices to overcome all the difficulties with the different eastern nations, thus rendering great service to civilization, and the cultivation of the general good.

The Isthmus of Suez situated between 30° and 31° N. latitude is a district of sand intersected by hills and lakes. It unites Africa with Asia, and marks with a depression from north to south the meeting of the two continents, the plains of which become gradually elevated one towards the east, and the other towards the west. On the Egyptian side it presents, besides the depression, another transverse to it, inclining towards the centre of the isthmus, and also towards the valley of Goshen, which the Pharaohs assigned to the Israelites, and which in these days is called the Wady-Tumilat. Towards the centre of the isthmus, and nearly equidistant between Pelusium and Suez, appears the high prominence of El-Guisr, which rises to nineteen meters above the waters. But to the south is Serapeum, ten metres above them, and between these two heights, a part of the submerged ground forms the Lake Timsah. After Serapeum towards Suez, the sea continues, forming the Bitter Lakes, but the table land of Chaluf rises from the waters, as far as the plain which reaches Suez, and limits the coast of the Red Sea. From El Guisr being depressed to the north it is very little above the level of the seas.

The part enclosed by these lands bears proof of a long and permanent submersion beneath the waters. Even yet in the Bitter Lakes a large mass of salt is found, many kilometres in extent, and in certain parts many metres in thickness. The first attempt at a canal to unite the Mediterranean with the Red Sea, dates from king Seti I., fourteen hundred years before our era. Starting from the Nile near Bubastis (at present Zagarig) the canal followed the land of Goshen as far as the Bitter Lakes. Some three hundred and twenty-six years before our era, Necho took up the subject, having conceived the project of a canal of ten metres depth, and sufficiently wide to allow two triremes to pass each other abreast. These works appear to have cost the lives of 120,000 men, and were never completed. But their track is

indicated beyond Lake Timsah, in the direction of the Pelusium branch of the Nile. Herodotus speaks of canals, by which commerce was carried on with the interior of Egypt, from the ports of the sea.

With the assistance of the canals of the Nile, traversing the isthmus, the Egyptians had established an indirect communication between the two seas, which sufficed for their limited navigation. The Romans and the Arabs (the conquerors of Egypt) established and improved the works of the Pharaohs, adapting them to their commerce until they were destroyed by the cailiff Almanzor, to prevent the transit of provisions, with the view of reducing the rebels of Arabia by starvation. Such in those days were these canals; having no title whatever to form the communication between the two seas. The general Buonaparte conceived the grand idea of cutting the isthmus, in spite of the idea of any considerable difference of level between the two seas; and a scientific commission of the army received orders to carry it into effect. M Lepere, who was specially charged with the commission, met with great difficulties from the war, the desert being infested with hordes of enemies. Repeatedly interrupted in the beginning of his work he found a difference of level of 9·08 metres, which the scientific body considered as being contrary to the laws of equilibrium between the two seas.

The English officer, Lieutenant Waghorn, with the view of establishing communication with India by the Mediterranean, saw the mistake of Lepere. Several English officers afterwards, besides French engineers, demonstrated the correctness of the calculations shewing that the theory was according to fact. The examination of the ground, geologically, also shewed that it was composed of a pure white earth and sand, in an extent of 147,986 metres.

M. Lesseps, during his consulship in Egypt, took in hand the information of the engineers of 1798, and from it conceived the idea of opening the isthmus; pursuing it in Spain and Italy, where in 1848 he formed a government provisional commission. Having forsaken his political pursuits, he was called to Egypt by the friendship of the Viceroy Mohammed Said, where he studied the whole question, and on the 30th November, 1854, obtained a firman, which conceded to him the right to make the canal across the isthmus of Suez.

M. Lesseps, with the greatest care, obtained the confirmation of the Sultan to this firman from the Viceroy, and by the operations of two French engineers there was no doubt that the project would be carried out. The English government and the Peninsula and Oriental Company declared themselves hostile to the work. Lord Palmerston believing that France would occupy Egypt to the disparagement of India, placed himself at the head of its numerous enemies. But M. Lesseps was not to be foiled. In Constantinople he had to contest with the opposition of the English ambassador. In London and Edinburgh he gave out his plans. In Paris he converted the nation to his project, and in Egypt he went on with his studies; not omitting to inculcate his ideas wherever he could with the utmost zeal and activity.

In 1855 a commission of leading men of all countries was formed,

who published their reasonings, shewing that on scientific grounds their plans were well supported. In 1856 (April), the Viceroy confirmed his decree of 1854; and approved of the statistics of the Company, which was to be formed under the name of the Universal Company of the Suez Canal, while M. Lesseps studied most carefully the Pelusium roadstead, and in November, 1858, opened a subscription with which to commence the operations of the company. This met with extraordinary encouragement, and on the 25th of April, 1859, the first excavation was begun in the sand occupied now by Port Said. During the Italian war, an English squadron appeared on the coast of Alexandria intimating from the Sultan to the Viceroy, that he should suspend operations on the work; but the emperor Napoleon III. agreed with the English government, that the industrial question should be entirely separated from the political, and that the works should be continued for three years, in order that some severe storm might try the strength of the work in question. The Porte also prohibited the works, from the employment of the felattahs, and was also opposed to the cession of the land to the company. In fact the crisis had arrived. But M. Lesseps stood up for his rights with so much energy, that he begged of the emperor to regulate the question respecting the land, so that he at length succeeded. But the workmen fell off, urging the unhealthiness of the climate for European workmen, and it became necessary to form a well provided camp between the sea and the desert. There was no fresh water, and it was necessary to bring it from Damietta or Alexandria on camels at a fabulous cost!

The place of starting the canal from the Mediterranean was not where the scientific international commission first pointed out. By the enquiries of the hydrographic engineer Lieusson it was changed to further west, and although the canal was augmented by this change of many kilometres, it admitted of the coast being approached within eight to ten metres, to where the reef terminated, which would form its sea port. These depths were found at 2,500 metres from the shore, in the bay of Dabich, where the first spade full was turned, where now Port Said stands with 12,000 souls.

The other end of the canal was at the road of Suez, already frequented by the vessels of the P. and O. Company. Here the difficulties were less, and between these two points the line of the canal was planned, certain features of the land being turned to profit. First it went southward to Kantara, crossing the lake Menzaleh, for forty-five kilometres. At twenty kilometres further south it passed El Ferdan, and the prominence of El Guisr at twelve kilometres. The canal then enters Lake Timsah, the centre of it all. This lake measures four kilometres, Serapeum fifteen, the Bitter Lakes thirty-eight, the table land of Chaluf eight, and the plain of Suez as far as the sea twenty: making one hundred and sixty-two kilometres instead of one hundred and seventeen, the least distance from sea to sea.

Stations were established: the work was organized by simultaneously attacking the whole isthmus, and the canal took a twofold direction in Port Said, towards the desert across lake Menzaleh, and towards the

sea to create a new port necessary to navigation, and for the furtherance of the canal. To the city and port founded was given the name of the Viceroy, a just homage of respect for his desire to give entrance in his dominions to European civilization.

It was requisite to make this a store for all materials and necessaries, and because vessels could not collect owing to the small depth, an island was formed with stone from Alexandria, establishing on it large cranes to deposit in barges the cargoes from the vessels. At the out port two reefs were formed destined for the formation of it; one to the west 2,500 metres long, opposed to the N.W. winds, which almost always blow here: and the other of 1,800 metres to the east, inclined to the former to confine the entrance of the road. But distance made this a costly work, and the engineers founded an establishment on the spot, where they made artificial stone, composed of sand and limestone compressed and dried. These works added to the employment of the dredges completed those of Port Said, the population of which now amounts to a number above even that of Alexandria.

From here to the desert the canal crosses lake Menzaleh, which receives some water from the Nile between Damietta and Pelusium. The Mediterranean also penetrates this lake in gales, giving water over those sand banks which separate it from the lake.

In the year 1862, the works for conducting the water to lake Timsah were concluded, and the city of Ismailia rose upon its shore; in which were established the offices of administration, and the facility of going by land or sea from this place to Suez, Cairo, Zagazig, or Port Said, rendered it one of great importance. El Serapeum and its prolongation towards the Bitter Lakes was the next point of attack, the plain of Chaluf, which succeeded it, was the most difficult to overcome from its rocky ground, and it became necessary to modify the first sketch of the engineers. In the plain of Suez, as far as the roadstead, no serious obstacles were found.

After the arbitrary sentence of the emperor the definitive impulse was received, and thousands of men were employed by groups on the whole line of the canal, like so many hives of bees in the desert.

Enormous dredges, with huge tubes, were at work at Serapeum above the level of the sea. The engineers Borel and Lavalley were the creators of these colossal machines, real monuments from their dimensions, and intensely valuable from the service they rendered. By means of them, the sand was torn up from the bottom to a length of seventy metres from the centre of the canal. At the same time they caught the water, destined to throw the sand outside of the tube, moving at the same time the pallets of a chain with the same object. The sand thus removed was deposited in mounds along the canal, so that the complicated details of the operation were executed by one and the same movement, and to the means by which this was effected is due the rapidity with which the canal was finished. In order to deepen the canal it was necessary to take up from 25,000 to 30,000 cubic feet per month, which may afford some idea of the great service performed by the leviathans. Transported to Suez by the fresh water

canal, they deepened the canal which terminates in the roads, and the lagoons, going by the desert as far as Chaluf. At this point from the nature of the ground instead of dredges they established inclined planes, on which by means of horses and donkeys the wagons ascended and descended leaving their loads of sand and mud.

The engineers Borel and Lavalley have proved themselves to be clever men, by the improved means of machinery which they have introduced; adding the emulation of their example to the labourers divided into groups to carry on the work.

Hospitals are established for the reception of those attacked by disorders incident to the climate: in fact there never was a work of so much importance that has cost so little expenditure of human lives.

Until the present time the authors of the canal have turned to good account even the few obstacles to their work, they have also responded to all the objections made to the execution of the work. Stephenson declared it was not possible to form a port in the Pelusium gulf, forming his opinion on the winds and currents incessantly thrown on the coast from the sea; and said that the port as fast as it might be formed would be filled up. The engineers of the isthmus were quite alive to this state of things: but by the attention of Lieusson demonstrated that at the depth of ten metres the bottom was mud, not sand; and consequently at this dividing line there was nothing to be feared from such accumulation. With this data 2,500 metres was determined for the extension of the western pier, and the sand has remainded in the angle formed by the coast. The small amount found in the road is that which penetrates between the stones of the breakwater. Since the roadstead was formed the importance of this deposit has been calculated. Mr. Fowler, one of the most distinguished English engineers, in his recent visit to the canal, has answered the objection of Stephenson with a small amount of costs.

Another objection was to the want of solidity in the banks of the canal, as it crosses lake Menzaleh being formed of lime deposited by the water, and it seemed impossible that they should resist the effect of the contained water. But the sandy mud hardened by the sun has attained a solidity which affords a sufficient proof, and the tubes which conduct the freshwater from Ismailia are placed on it.

It is very well known that the wind of the desert sweeps the sand along with it; and hence came another objection against the possibility of forming the canal. The very same objection was made to the railway, and yet for fifteen years the railway has been at work, and is not yet buried in the sand. The lakes Menzaleh, Timsah, and the Bitter Lakes, have not been filled by the sand, and it is not doubted that it is quite practicable to keep the canal free through them. In fact two essential proceedings have been kept in view: the first is that the sands are kept moving in the portion the of isthmus forming El Guisr; the second is that the wind sweeps the surface and the sand against the first obstacle it meets with, and the means to protect the canal are very easy by planting trees in the soil watered by the Nile for their nourishment.

Again, it has been asserted that the rise and fall of the tide in the Red Sea, from Suez to the Bitter Lakes, would become a perpetual cause of destruction of the banks of the canal. Mr. Fowler was also of opinion, that the evaportion of these lakes would accelerate the tidal current. But it may be said that if this portion of the canal is most threatened it is also the part best defended by the nature of the soil, composed as it is of a resisting whitish earth; it scarcely measures twenty kilometres and to *pave* it would be easy, and would cost little from the materials being at hand. With reference to the effect of evaporation there are opinions opposed to that of Mr. Fowler, and by authorities no less eminent; and they calculate that the volume of water from the Bitter Lakes, would oppose a counterpoise to the flood from the Red Sea, regulating the intensity like a compensating pendulum, maintaining the equilibrium between the expansion and contraction of the fluid.

Again a writer has discovered (under another point of view) the general deterioration of the banks of the canal. In several numbers of the *Americain* of Brest, the conclusions of the commission of M. Lesseps on the theory of opening the canal are refuted. According to the writer the destruction of the sides of the canal is certain, should vessels pass through it at a velocity greater than 2·03 miles an hour. Let us see, says he, what will take place when large vessels meet each other. "They will displace five or six thousand tons of water each, or together twelve thousand tons, which quantity is the fifth or sixth part of the whole mass of water contained in a section of the canal equal in its length to those vessels. On passing the normal level would be elevated 1·5 or 2 metres, and more even towards the sides, against which the elevated waves are pushed with more or less velocity. After these two vessels have passed each other, they would leave a vacuum of ten to twelve thousand tons towards the middle of the canal, whose level would fall two or three metres, which would cause them to ground if they were not wrecked; until the water recovering the sides of the canal would fill the vacuum in virtue of the laws of gravity. A difference of level of two or three metres towards the centre less would make a whole difference of four or five metres; the water would precipitate itself towards the centre of the canal with the violence of eight or nine metres per second, after passing the vessels, destroying the bottom and sides of the canal, from their being unable to resist such forces, whether formed of hydraulic bitumen, marble, or granite."

We will not lose sight of the choice made of the displacement of water by such large vessels in passing each other, and we shall find the exaggeration is quite evident. The author of the foregoing has not taken into account the means possessed by the authors of the canal in the electric wire to preserve vessels from all such danger. Neither M. Lesseps nor any maritime authority consulted, have thought fit to record any details of so novel a creation in the use and preservation of channels of navigation. Among other precautions the Company's engineers have given to the higher side of the canal an inclination,

such, that the waters may expand themselves on it like the waves of the sea on the beach, and to secure its consistency, have increased the number of aquatic plants there, which are so abundant in the Red Sea.

The object of great calculations and commentaries is the utility which commerce may recognize in the opening of the Canal. By the approximate tonnage passing the Cape of Good Hope, a cypher has been deduced sufficiently good as applicable to the isthmus. The opposers have adduced their cyphers and arguments against the friends of the canal: have tried to prove that the use of it would be costly from the dues exacted by the Company, that for sailing vessels from the northerly winds which prevail in the Red Sea for six months, and the other six from the opposite direction. But we believe that the greater the length of the passage, and more especially the greater the security in all commercial relations, so much more may these be multiplied. By the Red Sea steam vessels bring us the most valuable merchandize of India and China, in spite of the height of freight and the necessity of transport.

Far from having any doubt of the navigation of the canal we are of opinion that the company will eventually have to increase the dimensions of it to meet the increase of the traffic. The engineers Borel and Lavalley, it is said, have proposed to double the actual depth for the sum of fifty millions of francs; and the amount of this sum is small compared with three hundred millions laid out by the company. The installation of the canal has cost enormous sums; the road of Port Said, the works of Suez, the buildings for the administration, the fabrics, the leading of the fresh water, which of itself alone cost sixty millions, have absorbed the principal part of the first expenses. At present, the above work is reduced to extracting a certain amount of sandy soil, and the time required in which to do it may be readily calculated. It is certain that at first the cost of piercing the isthmus was estimated at two hundred millions of francs, an operation supposed to be done in three years, when scarcely three hundred millions have sufficed in ten years since the work was begun. But all this has arisen from the political opposition with which the work was received.

Since the United States finished their gigantic railway of 3628 miles between New York and San Francisco, from the Atlantic to the Pacific, the most anxious opinions have been speculated on its commercial effect on the extreme east. In ten days one passes from ocean to ocean, and the merchant of New York may go in twenty-five days to Yokohama. The road being thus shortened, the question is asked, can it be prejudicial to the Suez Canal. The American press in accord with the English decidedly says "no;" in fact, although the passage were the same, the rail would not have an advantage over the canal, the transport by one mode and another being three to one. It costs as much to bring tea by the rail from New York to Chicago as it does by sea from Hong Kong to New York. The time lost by steam from England to China via Suez, is less than that employed in crossing

America and the Pacific. The question would be more proportionate if a railway were open across the isthmus of Darien and Panama. Commerce might then choose between the eastern route of Suez and the western one by Panama. Let us see the distances between the three principal points in the inter-ocean commerce to Shanghai, the most important market of China.

| | | *Viâ Suez.* | *Viâ Panama.* |
|---|---|---|---|
| From London | to Shanghai | 12,000 miles | 13,500 miles. |
| „ Marseilles | | 9,000 „ | 12,000 „ |
| „ New York | | 12,500 „ | 12,500 „ |

So that the way by Suez is the shortest way to go from Europe to China. From New York to Shanghai the distance is the same for both: but America would have the advantage of navigation by the Pacific for sailing vessels, although it would be as exposed to delay and contrary winds as the Red Sea.

The Panama Canal, if it should ever be opened, far from being the rival of Suez would be its appendage, and both would augment the traffic, offering to speculators, to the experienced, and to every one the ready and easy means of visiting the most interesting parts of the globe. Embarking at Marseilles they would cross the Mediterranean, the Red Sea, the Indian Ocean, the China Sea, the Pacific, and the Atlantic: they would touch at Port Said, Mocha, Bombay, and Ceylon, Calcutta, Singapore, Saigon, Shanghai, Yokohama, the Sandwich Islands, San Francisco, Panama, Havana, New York, and would be returning before a vessel sailing from London for Calcutta, viâ the Cape, could arrive at her destination, and in about a hundred days would have gone round the world.

We heartily congratulate M. Lesseps on his having initiated this work, which we do not look on as the fruit of vulgar ambition. Very soon the Canal will be inaugurated, at which festivities the representatives of all nations will be present, and as we have understood our frigate the *Berenguela*, and a schooner tender will pass through the canal for the Philippine islands.

We are confident that gradually our rich islands, the Philippines, will obtain great advantages from the opening of the Canal in their mercantile relations with Europe; and we shall be one of the nations called on to reap the fruit of this great work, due as it most truly is to the constancy, energy, and activity of M. Lesseps, on whom the government has conferred as the reward of his services and industry, the grand cross of the royal and distinguished order of Charles the Third.

[Our last two numbers contain the very interesting account of the passage of the *Berenguela* through the canal, to which number we may refer our readers (along with this paper), in refutation of all the objections we have ourselves heard against this glorious work of M. Lesseps.—Ed. *N.M.*]

## Ethnographic view of Western Africa.—*Senegambia.*

*(Continued from page 487.)*

The Vai Family.—The first of the six principal families of Northern Guinea in geographical order is that of the Vai, whose chief settlements are about Cape Mount, half way between Sierra Leone and Monrovia.* This family includes the Timanis and the Bulloms near Sierra Leone, the Deys, the former occupants of Cape Messurada, and the Condoes, the Golahs, and the Menda tribes of the interior. We have placed the Vais at the head of this family because they have signalized themselves by the invention of an alphabet of their own, that is now growing into general use among themselves. This discovery or invention was commenced twenty years ago by two uneducated youths of the tribe, and some account of it was published in the number of the *Missionary Herald* for June, 1853. A fuller account has recently been given of it by Captain Forbes, of the British Navy, in his book on Dahomy. It has been noticed by the Missionaries of Sierra Leone also, and, recently, several little books have been published by the Church Missionary Society, in London, in this newly invented character, for the use of the Vai people.

The Vai people are very black, of slender frames, but with large and well-formed heads, and of a decidedly intellectual cast of countenance. They are mild and gentle in their character, are fond of agriculture, but, unfortunately, for a long succession of years, deeply implicated in the foreign slave trade. Of late years, some of them have embraced the religion of Mohammed, but the greater part remain pagans.

*The Manou or Kru Family.*—Under this name are included all the smaller tribes between the Bassa and St. Andrew rivers, or that portion of the coast known as the Grain, but more recently as the Siberian Coast. It includes the Bassas, the Fish, the Kru proper, the Sestos, the Grebo, Drewin, and St. Andrew people.

The people of Berebi, Drewin, and St. Andrew have generally been ranked with the Kwakwa family of the Ivory Coast, but the slightest acquaintance with their language, character, and appearance, shows that they belong to the Kru and not to the Kwakwa family. Malte Brun, upon the authority of Lopez, and some of the earlier writers upon Africa, states that all the families on the Grain Coast were once united under a general government, the chief of whom was known by the name of *Manou*, *Menou*, or *Mandou*, and that this whole family was a branch from the kingdom of Amina, which is laid down on the older maps to the east of Sierra Leone and Monrovia. The present inhabitants of the country, at least those about Cape Palmas, have no recollection of the existence of any such government, but they ac-

* They were frequently denominated the Quadja people by the earlier writers on Africa.

knowledged the term *Mena* as the generic of all the dialects on this part of the coast.

The Kru family have always had a prominent place in the accounts of those who have written about Western Africa. They are not only employed as labourers on board of vessels which go to the coast, but they visit all the American and European settlements in the country, and occasionally England, coming to this country as sailors. They possess most of the distinctive features of the Negro race, but these are very seldom prominently developed. Their complexion, as a general thing, is very much like that of the present generations of pure blacks in this country. There are among them, however, a less or greater number whose complexion varies from a jet black to that of the true Mulatto, but with no essential variation of features. Some prominence should be given to this fact, as this is the only family in Northern Guinea, in which there is any variation from a jet black, and this is confined to the tribes between Bassa and Cape Palmas. Those between Cape Palmas and St. Andrew are black without exception. The person of the Kruman is large, square built, and remarkably erect. He has an open and manly countenance, and his gait is impressively dignified and independent. His head, however, is small and peaked, and is not indicative of high intellectual capacity. Their children, however, show no inaptitude to be taught, but make as much proficiency as any other in the country.

The Mena language has as many as seven or eight dialects along the sea-board, and perhaps as many in the interior. The Grebo dialect, that spoken near Cape Palmas, has been more thoroughly studied than any other, but has been found to be very difficult of acquisition. It is decidedly monosyllabic, harsh, abrupt, has but few inflections, and is exceedingly meagre in point of words.

The inland tribes are not materially different from those along the sea-board, either in their physical character, their customs, habits, or languages. There is a large tribe living along the western slope of the Kong mountains, called the Park people, whose complexion is decidedly lighter than those nearer the sea; and this is found to be characteristic of all the mountain tribes of Africa.

*The Kwakwa or Avekwom Family.*—This family extends from Frisco to Cape Appolonia, and takes in the different communities living at Frisco, Cape Lahu, Jack a Jacks, Bassam, and Assaini. The most prominent tribe among these are the Avekwom of Cape Lahu. In size, they are less than the Krumen, but are remarkably well made. Their complexion is very black, their hair is soft, which may be ascribed to their oiling and braiding it a great deal, and their heads are round and remarkably large. They are very pacific in their disposition; but have a great share of self respect, and affect great contempt for the surrounding tribes. They act as factors for the interior kingdoms of Gaman and Buntaku. Their trade in former years consisted of ivory and gold dust, but of late years palm oil has become an article of much greater commercial importance. In physical character they bear a much stronger resemblance to the Fantis

than to the Krumen, but their language shows very little affinity to either.

*The Tuta or Amina Family.*—Under this name are included the Fanti, Ashantis, and all the smaller tribes on the Gold Coast, with the exception of the Akra people, who are supposed to be more nearly related to the Dahomy tribes. The Fanti and Ashanti dialects are so much alike that they can scarcely be regarded even as different dialects of the same language. Both Fantis and Ashantis have a jet and somewhat glossy complexion and woolly hair, but their features, and especially those of the Fantis are better and much more regular than those of the Krumen. The Ashantis have the Negro characteristics more deeply drawn than almost any other people in this region of the country.

*Dahomy Family.*—The Dahomy country extends from the river Volta to Lagos, and extends over an interior region of country of equal extent. In this kingdom are five or six different tribes, all of whom are more or less related to each other, among which may be mentioned those of Akra (which, however, geographically belongs to the Gold Coast), Popo, Ardrak, Whidah, and the Foy, or Dahomy proper. Prichard represents them as "tall, well made, straight, and robust." Their complexion is black, but not jet or glossy as that of the Fantis, and still less so than that of the Negroes on the Senegal and Gambia.

*Benin Family.*—We apply this name to all the country between the Lagos and the Kamerun mountains. It includes all the principal settlements on the rivers which form the Delta of the Niger, amongst which may be mentioned, those of the Benin proper, Bony, Bras, Nun, New and Old Kalabar. All these rivers are the outlets of the Niger, and the tribes residing on their banks are supposed to be related to the Makos and Ibos inland. They are all extensively engaged in the manufacture and sale of palm oil, and the number of vessels which go there for the purpose of carrying on this trade, especially from Liverpool, is greater than is to be found upon any other part of the coast.

The country they inhabit, however, is very uninviting and unhealthy, and the character of the people, with the exception of those of Old Kalabar, is that of a comparatively low order of savages. They are generally very black, and have the negro features more fully developed than any of the communities we have been considering. The natives of Old Kalabar form an exception to these general remarks. They have had, for more than a century past, a greater or less number of persons among them who could read or write, they have kept a kind of historic record of all the important events that have occurred among them for a long time past. A Scotch missionary has recently been established among them, and their language has been reduced to writing, but it discovers very little affinity for the other languages of Northern Guinea, except in some of its grammatical principles. It has no affinity whatever, either verbal or grammatical, with the Duali on the opposite side of the mountain of Kamerun, so that this may be regarded as the southernmost of all the tribes of Northern Guinea.

*How far are these different families of Northern Guinea related to*

*each other?* We want material to settle this question. It is doubtful whether they all belong to one original stock. Their spoken dialects differ so widely that it is almost impossible to say that they belong to one family, and their agreement, if indeed there is any, must be in some general principles of inflection and not in words.

Comparative vocabularies of all these languages, with the exception of the Vai and Dahomy, have been published in the journal of the Oriental Society; from which it may be seen how far there are verbal resemblances among them. Taking the Grebo as the standard, we find that the Vai and Mandingo have each about five or six words of apparently common origin; and they agree further in the fact that all their nouns and perhaps their verbs commence with consonants, and form their inflections almost entirely on the final syllable. The Vai agrees with the Grebo, in having a number of monosyllable nouns. These two families, it will be remembered, are to the north of the Grebos, who live in the vicinity of Cape Palmas. Going eastward, there are an equal number of words in the Avekwom, the Tuta, and the Dahomy languages, that would seem to have a common origin with those of the Grebo, but all these differ from it again in having a large number of their nouns and verbs commence with the letter *e* and *a*, and show no disposition whatever to use monosyllable nouns. The Fanti differs still further, in deriving the plural forms of its nouns from the singular by changes on the incipient instead of the final syllable, a circumstance which almost isolates it from the other families of Northern Guinea. How it is in this respect with the Avekwom and Dahomy is not known. The Old Kalabar or Efik forms its plurals by changes on the last syllable or suffixes.

But whatever discrepancies there may be in the languages of the principal families of Northern Guinea, there is a striking similarity in their physical character, their customs and usages, their religious notions and superstitious practices, and in their intellectual character; and especially so when contrasted with the families of Southern Guinea, which we are now about to consider.

Formerly Cape Lopez, lat. 1° S., was assumed as the northern boundary of Southern Guinea, but the great Ethiopian family evidently begins at the southern base of the Kamerun mountain, and this therefore should be regarded as the proper dividing line between Northern and Southern Guinea. The mountain itself is a notable land-mark. It rises up almost from the water's edge to the height of 14,000 feet, and has the appearance of being covered with perpetual snow. The language of Old Kalabar on the north, and the Duali on the south side of this mountain are as different from each other, with the exception of a few words that they have borrowed by frequent intercommunication, as any two dialects that might be selected from the remotest part of the country.

In geographical area, Northern Guinea is more than a third greater than Southern Guinea; but, from its peculiar position on the map of Africa, it does not extend over more than three or four degrees of latitude, whilst Southern Guinea extends over eighteen or twenty.

This circumstance would naturally lead to the expectation of a more uniform type of physical character among the inhabitants of the former than the latter; and this is actually the case. The inhabitants of Northern Guinea, with the exception alluded to of the Kru family, are generally very black, whilst among those of Southern Guinea, as we shall show more fully in another place, we find every shade of colour, from a jet black to a light brown. There is great variety of physical type in the same communities, however, which may be accounted for by the intermixture of the maritime and the mountain tribes, a process which the foreign slave-trade would naturally promote. Why the same phenomena are not developed in Northern as well as Southern Guinea we are not prepared to say.

*General division of Southern Guinea.*—It is well known that the inhabitants of Southern Guinea constitute a part of one great family, which extends over the whole of the southern half of the continent of Africa, and is known as the Ethiopian, in distinction from the Nigritian which is to be found on the north side of the Mountains of the Moon. We shall not stop to point out the relationship existing between the different and distant members of this great family, as this has already been done by Vater, Prichard, Latham, and others, but will proceed to compare the maritime provinces of the Ethiopian fairly with the corresponding portions of Nigritia.

Southern Guinea comprises five families, viz., First, The Pongo family, occupying all the sea coast region from the Kamerun mountain, latitude 4° N., to Mayumba, latitude 30° S., and comprehends the Kamerun people, Banako, Corisco or Benga, Gabun or Mpongwe, Cape Lopez or Orunga, St. Katherine or Kama and Mayumba. Second, Loango, extending from Mayumba to the Kongo or Zaire river, and embracing the Loango people, the Kakongoes, and the Angoys. Third, The Kongo people occupying all the country between the Kongo and the Ambriz rivers. Fourth, The Dongo, embracing all the aboriginal inhabitants of the Portuguese provinces of Angola and Benguela. Fifth, The Azinko family, embracing the Gagas, the Azinko proper, and the Pangwe people. Of this last family, the Gagas are along the eastern borders of the old Kingdom of Kongo; the Azinkos to the east of Loango; and the Pangwes along the westerly slopes of the mountains, opposite the Pongo country. These may be regarded as the mountain tribes of Southern Guinea. The Pangwes have recently descended in large numbers from the mountain regions, and have formed in the course of ten years, more than twenty large villages on the head waters of the Gabun, and it is probable they will become dominant over this whole region of country before long. Our knowledge of the dialects of these mountain tribes is not sufficient to authorize the grouping of them into one family. But in physical character, in their habits, pursuits, amusements, modes of warfare, and implements of war, they are very much alike, and when their languages are better understood, it will probably be seen that they are closely related.

As to the maritime tribes, it must not be inferred that their family

relationships always correspond to their geographical position; but they do sufficiently so for the purpose of general comparison. The Pongo and the Loango families are very nearly related to each other, and it is probable that the Kongo and the Dongo are equally so; but we are not sure that there is as much resemblance between these two families on the opposite sides of the Zaire, as there is between them and some of the families on the east coast; the Pongo and Loango being more like the Swahere and other dialects about Zanzibar, whilst the Kongo and Dongo seem more like those of Mozambique.

*Pongo Family.*—On the Pongo coast, as in every other portion of Southern Guinea, we have a good deal of variety of physical type, and not only among the different communities as such, but among individuals of the same community. This should be borne in mind as one of the distinguishing characteristics of the Ethiopian family.

Of the six principal communities of the Pongo coast which have already been mentioned, those of Kamerun and Corisco are the most alike and have less variety of complexion. They are tall, slender, and not well formed, with black complexion and woolly hair, but with comparatively regular features. They are industrious, energetic, and exceedingly fond of being on the water in their canoes and boats.

The inhabitants of the Gabun, better known as the Mpongwe people, and those of Cape Lopez and St. Catherine, are essentially the same people in every important ethnographic respect. Among each one of these are at least five or six different types of character. In the Gabun there are at least five very marked types: First, There is the *Jewish type*, where the profile is strikingly Jewish, the complexion either pale or reddish brown, the head well formed, figure slender but well formed, and the hair nearly as woolly as that of the pure negro. Second, There is another, that may be regarded as the *Fulah type*, where the stature is of middle size, complexion a dark brown, the face oval and features regular, the hair in some cases crisp and woolly, and in others soft and even silky. Third, The *Kaffir type*, where the frame is large and strong, the complexion a reddish brown, the lips thick but not turned out, the nose somewhat dilated but not flat like the Negro, the hands and feet well formed, but the hair is crisp or woolly. Fourth, A type corresponding to the description given of the Kamerun and Corisco men, and in some cases showing a decided approximation to the features of the Somarelis represented in Prichard's work on the physical history of man. Fifth, What may be regarded as an approximation to the true Negro type, the most striking instance of which we have ever seen, is that of a man by the name of Toko, whose likeness is to be found in the *Day Star* for 1847. But even this shows a much better formed head and a more intelligent countenance than belongs to the pure Negro. The females of this region are the handsomest perhaps to be found on the coast of Africa. They exhibit the same variety of complexion, stature, and features that exist among the men, but their forms are delicate, their limbs are small and tapering, and their countenances are decidedly intelligent, mild, and pleasing.

But the Banaka people are the most remarkable family on this part of the coast. They are located, it will be remembered, intermediate between the Kamerun and Corisco people, and have settled on the sea-coast within the last twenty-five or thirty years. It is not known from what direction they came to this part of the coast, but no one could fail to be struck with the peculiarity of their looks. Their complexion is of a reddish brown, and in many cases very much freckled, the hair in some individuals corresponds with the colour of the skin, and they have a peculiar expression of countenance, which cannot easily be described. If found in South Africa, they would be regarded as Kaffirs, though they have not the athletic forms of the Amakosah Kaffirs. Their women disfigure themselves by making large holes in their ears and through the cartilaginous part of the nose, into which they frequently insert pieces of fat meat, a custom which is practised by the Gallas and other tribes along the confines of Abyssinia. But although so peculiar in their appearance, their language is closely allied to that of Corisco and the Bakeli, unless they have borrowed largely from these dialects.

*Loango Family.*—The inhabitants of Loango do not differ materially from those of the Gabun and Cape Lopez. It is probable that the Jewish type of character above-mentioned forms a larger element of population here than it does on the Pongo coast; and this it was, doubtless, which led the Roman Catholic Missionaries, who laboured here during the sixteenth and seventeenth centuries, to the conclusion that they had found *black Jews* in Loango. This type of character combined with the practice of circumcision, naturally enough led to this opinion. But this rite is nearly universal throughout the country, whilst this particular cast of countenance is only one out of a good many varieties that cannot be accounted for.

Barbot states, that in the reign of Don John II., and about the close of the fifteenth century, large numbers of Jews were expelled from Portugal and taken to the coast of Southern Guinea, that the island of St. Thomas, which is not more than one hundred miles from the mainland, was populated by mulattoes descended from the Jewish exiles and Anglo women. It is possible that the Jewish type of character noticed at the Gabun and Loango may have originated from this source; but if so it is unknown to the present inhabitants of the country, and it would have been somewhat singular if the Roman Catholic missionaries at Loango had not detected this circumstance instead of regarding them as a pure African family of Jews.

*Kongo and Angola or Dongo people.*—There have been so many of the Kongos and Angolos brought to this country in former years, while still greater numbers have been imported into Brazil of late, that it scarcely seems necessary to give a very minute account of them in this place. It is important to remark, however, that these families in Africa cannot be fairly estimated by such specimens of the nation as have been brought to America; for the subjects of the slave trade have almost invariably been gathered either from certain degraded clans that are interspersed among the more powerful tribes, or from

the weaker and more debased individuals of these more powerful families. But of this we shall speak more fully in another place.

*The Azinko Family.*—The Jagas or Giagtic, as they are sometimes called, are well known as a wild and savage horde, who were at one time as great a scourge to the people of Congo as the Gallas in the east have been to the Kingdom of Abyssinia. They overran the kingdom of Congo several times during the sixteenth century, and would doubtless have subjugated the whole country had it not been for the interference of the Portuguese. They are represented as man eaters, and were said to be exceedingly ferocious. The Azinkos proper or Azinguese living on the certain borders of Loango, are much milder in character than the Jagas, and have never invaded or molested the maritime tribes.

The Pangwes are still further to the north, but never crossed the west side of the mountain until within the last fifteen years. They have emerged from the mountain fastness in the greatest numbers near the head waters of the Gabun, and have already formed between twenty and thirty large villages along the banks of its tributaries. It is difficult to form a correct idea of the size of the family which these represent. Those on the Gabun speak of themselves as but a handful compared with the immense numbers they have left behind. They are more pacific than the Jagas, but have enough of the war element, however, to cause the Bakelis, Shekanis, and other intermediate tribes, a good deal of anxiety; these latter are gradually getting nearer to the seaboard to keep out of their reach.

In many respects the Pangwes are a very remarkable people. Their complexion is at least two shades lighter than the true Negro, their hair is softer and braided so as to hang quite below their shoulders. They are square built and in stature quite equal to the Krumen. Their features are intermediate between that of the Arab and Negro; their heads are round and large, and their gait and general mien is that of perfect independence.

They wear no clothing except a narrow strip of bark cloth in front, and besmear their bodies with a kind of red paint. They are always armed with a bundle of long spears, such as are used by the Nubians, carry a singularly shaped tomahawk, suspended from their left shoulder, a long knife or sabre in a case covered with snake or quassa skin, and in times of war they carry a broad shield made of elephant hide. They use also crossbows, with which they shoot poisoned arrows with great precision and to a very great distance. They smelt their own iron, and manufacture all their own implements of war, They show a good deal of mechanical skill in the manufacture of brass, iron, and ivory ornaments; and the iron which they manufacture is so much superior to that offered for sale along the sea-coast. that one would scarcely receive the latter as a present. They have a circulating iron medium, by which their commerce is regulated. They cultivate the soil sufficiently for the means of subsistence, but spend much the greater part of their time in fishing and hunting, and especially in hunting the elephant, which is valued both for its flesh

and its tusks. The only articles of foreign manufacture which they have heretofore cared for are brass pans and white pound-beads. The former they manufacture into ornaments, particularly bracelets and anklets; the beads they work into broad belts to be worn round the arms, and work them into their hair so as to form a complete bead wig. They live in small huts, the sides of which are enclosed with bark, and the roofs are covered with leaves.

The first attempt that was made to acquire the knowledge of the Pangwe language induced the belief that very nearly all the words were monosyllabic, and had little or no affinity with the surrounding dialects; but a more thorough examination has led to the conclusion that its monosyllabic character arose from the hurried and energetic mode of communication, in which they clipped their words, or forced two syllables into one, and when expressed more slowly and fully it showed a decided affinity to the other dialects of the country. It is probable that the Pangwes are more nearly related to tribes south-west of Abyssinia than those along the western shores.

*General remarks on the families of Southern Guinea.* If the families of Northern Guinea can be characterized by homogeneity of complexion, with very limited traces of linguistic affinity, those of Southern Guinea may be represented by just the reverse. Here we have homogeneity of language with almost every variety of complexion and feature. The sameness of complexion in the former case, may be ascribed in part to a sameness of climate, but the variety in the latter case must be ascribed to a different cause; but what that cause is we shall not undertake to decide. We would merely suggest, however, whether it may not be an intermixture of races which, instead of manifesting itself by an intermediate type of character, has assumed that of a capricious variety. The cause may be the difference of altitude at which different communities have long lived.

(*To be completed in our next.*)

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## Our Seamarks, No. 3.—*Beacons and Buoys.*

The beacons and buoys about our shores contribute in no small degree to the efficiency of our coast-marking arrangements. They are very numerous, are invaluable to pilots and masters of coasting vessels as guides by day, but not being illuminated are of no great service at night.

The term "beacon" as distinct from lighthouse, may possibly seem rather anomalous to some of our readers, for we know that with many people the word still retains its old comprehensive signification; and is associated with flaming bonfires on high headlands, signal lights, and sea-marks of all kinds. We however regard the term in its technical sense, in which it has a much more limited application than formerly, and in which it is understood to refer only to those fixed

unlighted marks and signs set up on rocks, sandbanks, and low outstretching points of land in the wide parts of large rivers and elsewhere, which at certain times of tide are hidden from the mariner's sight. It is in the rivers and estuaries of the United Kingdom that they are mostly used. In the long tortuous reaches of the Thames they are of great service, and every point that is covered at high water is marked by one of these beacons, which shows its head above the flood tide and indicates the position of the point. The author of these lines was once witness to an extraordinary disaster, occasioned by one of the Thames beacons not being seen by the master or pilot of a powerful screw steamer. The vessel was proceeding down the Thames at half speed on the top of the tide in a thick misty rain drizzle. The beacon which marked one of the points, although shewing above water was not seen by whoever was in charge of the ship, and inadvertently she was taken inside the beacon. The result was that she ran her nose forcibly into the ground, and, notwithstanding the exertions of four tugs, remained on the bank until the next tide. Luckily there was no danger of her being battered and knocked about by furious waves, or the result would have been much more disastrous.

There are probably about 250 recognised beacons on the British coasts, each serving some special purpose. Of these 250 there are various kinds. Many are simple structures of masonry on land, placed as guiding marks for entering harbours, anchorages, etc. Others are iron structures of sundry shapes, or poles or masts with stays, set up on isolated rocks or sandbanks, on riverbanks, and in fact wherever the spot requiring to be marked is neither large nor important enough for an expensive lighthouse, and where there is some sort of foundation for a fixed structure. Very recently a new iron beacon has been erected on the shingles sand off Margate, to replace the old one which was washed away after having stood for twenty-four years. The new beacon is composed of an iron cylinder two feet six inches in diameter and forty-eight feet in length. It was taken out in two pieces, and at low water when the sand was nearly dry, the first part of the cylinder was set on the sand. A man then went inside, and in this very limited space had to dig out the sand, which was hoisted up in buckets. As the sand was taken from the inside, the cylinder gradually sunk aided by a little battering from the outside, until it was fifteen feet in the sand, the other half was then fastened on, and the operations continued until the cylinder was sunk to a depth of twenty-five feet. The inside was then filled up with shingle mixed with cement, which with the water that made its way up from the bottom, was to form a hard concrete; a mast with a diamond shaped head was fixed in, which protruded about twenty feet out of the cylinder. The whole was painted black and the beacon was completed, its diamond head shewing thirty feet above high water.

Before the lighthouse was built on the Wolf Rock off the Land's End, there was a beacon on the rock to mark it at high tide. It was a cone of masonry with a mast and globe at the top, and it is said to have cost more than £10,000 to place it there. An iron beacon is

now being erected on a dangerous rock called Carrig Chwslen in Carnarvon Bay, and another larger one on the Grande Auguette Rock off Jersey to replace one washed away. On the Goodwin Sands stands a warning and refuge beacon, and any unfortunate individual who happens to be stranded on that sand, may climb up the beacon into a basket which is above high water. We observed at the beginning of this paper that beacons were marks devoid of light, but we have to record one rather remarkable exception to this rule. At Stornoway in the Hebrides there is an illuminated beacon. There is a cone of cast iron erected on the Arnish Rock, on the top of which cone a lantern is placed, and from the lantern at night a good light is shewn. But the interesting part of it is that in the lantern there is nothing burning, no electricity or anything of the kind; moreover no one goes near it night after night, and yet regularly every evening a light shines from it. It is managed in this way. Inside the lantern is fixed a glass prism, on to which a clear beam of light is projected from Stornoway lighthouse on shore, and the reflection of the light produces the desired effect. The plan is so successful, that the fishermen in the neighbourhood will not believe there is no actual flame in the lantern. In Scotland there are some very fine specimens of beacons, really beautiful structures of stone and iron. Where there is not sufficient navigation by night of a locality to justify the expense of a lighthouse, a beacon answers the purpose of marking a hidden danger admirably.

One of the best features about beacons is that when once put up they cost almost nothing for keeping them going. Lighthouses, light-vessels, and even buoys require a great deal of attendance, and money spent on them to keep them in an efficient state; but beyond an occasional coat of paint, the beacons do not form an expensive item in the maintenance of our seamarks.

We now come to the consideration of the buoys:—those uneasy and restless fabrics which are encountered here, there, and everywhere by the sailor, and which are much more numerous and volatile than their steady going relatives, the beacons. Shall we say that the poetry of a buoy's existence is motion; it seems to enter quite into the spirit of the waves and to accept willingly the result of its position as their plaything, perpetually in motion. It rolls and plunges with the most furious sea, it dances playfully with the sunlit ripples, or it gently rocks in slumber on the bosom of the sleepy undulating waves. But under all these varying influences it does not alter its position, it coquettes with the waves, but remains firm to its trust. Whatever its particular mission may be, it seems always to be rising and courtseying before the eyes of the sailor, as much as to say, "Look at me, you know why I am here, so be careful!"

Approximately, we should say there are about 1500 buoys round the coast of our United Kingdom. This calculation does not include warping and mooring buoys, which are merely the landmarks of the family of buoys, but we refer to those jolly fellows who, in their bright coloured coats, tumble and dip themselves far out in the salt green sea.

Each buoy has a special duty to perform, each one has to tell the mariner something important for him to know. Pilots rely mainly on their assistance in conducting ships through narrow channels; and the masters of coasting vessels could not pursue their voyages in safety without them. It would seem then, that these buoys are, so to speak, responsible individuals, and that although they appear to be at times very roughly treated by the sea, yet they inspire that confidence in the sailor's breast which makes him implicitly trust to their guidance, notwithstanding the danger of their being out of position through the sea's violence, and thus being converted into misleading instead of safe-guiding marks. It is science and mechanical skill which have made our buoys, in so great a measure, impervious to the force of the great, blustering, turbulent ocean. Their shape and construction are adapted to their purpose, and they are held in their places by adequate moorings. A few particulars about them may be interesting.

In the early days of coast-making, buoys in the shape of casks were extensively used, probably the simple unadorned casks themselves were made available, but now-a-days we have something much more elaborate, and buoys of all sorts and sizes, like huge fishing floats, are doing duty in large numbers in our waters. The smallest is about four feet in length, the largest as much as twenty feet. It has been found however that these very large, or as they are called, "monster" buoys, are not easily handled; if damaged they cannot easily be shifted, and that they are generally rather awkward customers to deal with; consequently, they are not very much used. A buoy of thirteen feet in length is now considered the best size for a large buoy, and ordinary buoys, that is, those most in use, range from six to nine feet.

The ranges of buoys may be comprehensively classed under two divisions, viz., the can and conical. The can buoy has a round flat top and taper off to a point to the mooring eye. In the water these buoys seem either to stand upright like so many tables, or when the tide is strong to loll on their sides. These are the buoys mostly employed in marking the sides of channels, and their sizes vary from four to eight feet in length. The conical buoy is in shape just the reverse of the can, instead of the bulk being at the top and the point in the water, the point of the conical buoy is at the top, and the bulk in the water. Can buoys are always the same, but conical buoys are of several varieties, having only one feature in common, viz., their cone shape. Their sizes range from eight to twenty feet, they have different internal arrangements to enable them to ride well, and they are differently constructed as far as their bottoms are concerned. There are flat-bottomed, hollow-bottomed, and egg-bottomed buoys, and there are also bell-buoys: in each of these kinds the shape of the cone is necessarily slightly varied. Flat-bottomed buoys are best described by their name; convex-bottomed are slightly curved underneath; a hollow-bottomed buoy is rounded off at the base of the cone, and turns up into a hollow just like that at the bottom of a wine bottle, but of course on a large scale; an egg-bottomed buoy is also

rounded off at the base of the cone, but instead of a hollow being underneath there is a protuberance, or as it were a small buoy growing out. We have not space here to inform our readers of the peculiar merits of each of these various kinds, each modification in shape is made with an object, and we hope in some future paper to be enabled to go into the matter more closely. For the present we must be content to continue our general observations on the subject.

Bell buoys are made with a rounded off base and a curved bottom, so that they may be susceptible to the least motion. The bell is fixed in the upper part of the buoy, which has a strong framework; four hammers are so placed that whichever way the buoy rolls one of these hammers falls and strikes the bell; so with continuous rolling there is continuous sound. These buoys are most useful in foggy weather. Many of the large buoys are made to carry some sort of distinctive mark at the top, such as a cage, triangle, diamond, or cross. They are also divided into several compartments, one at the bottom which holds sufficient water to act as ballast to the buoy, and two or three above which are water-tight, and it is said that if one or two of these water-tight divisions were damaged so that water could get in, the remaining compartment would keep the buoy from sinking. There is another kind of buoy which we may notice, but which is not much used just yet, and that is the spherical buoy; as may be supposed from its name it is perfectly round, like a great ball in the water. The small buoys are nearly all made of wood, but the large ones are iron. We had nearly forgotten another kind of buoy, which is different to all the rest, is always kept distinct, and is employed on a particular but somewhat melancholy duty. We allude to "a green buoy marked with the word 'Wreck,'" one of which kind is always placed to mark the position of a sunken vessel, so that other vessels may not knock holes in their bottom by striking on the spars sticking up beneath the water. The appearance of these wreck buoys is quite different to all the other kinds; they are always painted green, are made of wood, and are called *Nun** boys. For purposes of distinction, buoys of different shapes are very useful, but in this respect, colour is the principal agent employed. It has been found that these colours (not including green, which is only used for wreck buoys) are best adapted for painting buoys, viz., red, black, and white, they being the colours which are best distinguished at sea. The variations of colour are not very great, and all buoys are coloured in one of the following ways, viz., red, black, red and white, or black and white. Red and black are never placed on one buoy, nor is white by itself; but further variety is

* In Sewell's Dutch Dictionary of 1691, the Nun buoy is no buoy, "de non," which would seem to be implied by its temporary character. They are seldom longer than a month in their places. We believe that this kind of buoy is not only distingnished by its form, but also by its colour which was always green. Admiral Smyth in his Word Book says, it is "A buoy made of staves, somewhat in the form of a double cone; large in the middle and tapering rapidly to the ends; the slinging of which is a good specimen of practical rigging tact."—ED. *N.M.*

obtained by red or black and white vertical stripes, red or black and white annular bands, and red or black and white chequers or squares. In regarding this part of our subject, we are reminded of something very much like a flaw in the general buoyage arrangements of the United Kingdom. It is obvious to all seamen that, in marking the navigable channels round the coast, it is highly desirable that a uniform system should prevail in every locality, as far as the colouring of the buoys is concerned. Unfortunately, however, diversities of opinion exist between the different authorities, and the sailor finds that a particular arrangement of colours means one thing at one place and something quite different in another locality. The Trinity House plan is as follows:—

The entrances of channels from seaward, or turning points, are marked by conical buoys with or without staff and globe, or triangle, cage, etc.

Single-coloured can buoys, either black or red, mark the starboard side, and buoys of the same shape and colour either chequered or vertically striped with white, mark the port side: further distinction is given when required by the use of conical buoys with or without staff and globe, or cage; globes being on the starboard hand and cages on the port hand.

Where a middle ground exists in a channel, each end of it is marked by a buoy of the colour in use in that channel, but with annular bands of white, and with or without staff and diamond or triangle as may be desirable: but where it is of such extent as to require intermediate buoys, they are coloured as if on the sides of a channel. Sometimes the outer buoy is marked by a staff and diamond, and the inner one by a staff and triangle.

This system is not followed in Scotland nor Ireland, neither is it in force at Liverpool, and several other places in England. They say that it is better to have red on one side and black on the other; but we are inclined to think that it is much more difficult to distinguish red from black than red or black from red and white or black and white. However, we do not purpose to discuss the point in this paper, we draw attention to the apparent want of uniformity, because we think it by no means desirable that such a state of things should exist, and we hope the various authorities will sooner or later agree on one system, to be harmoniously accepted in all parts of the United Kingdom.

The buoys are kept in their places by strong moorings. Each buoy is attached by some fathoms of one and a half inch chain to a sinker, a flat square mass of iron weighing from ten to thirty cwt., according to the size of the buoy, or the depth of water in which it is moored. Some buoys, in exposed situations, are held by mushroom anchors, and a few others by stone sinkers. There is always more chain to each buoy than the actual depth of water required, so that in rough weather the buoy may have plenty of scope, and that sudden jerks or wrenches on a taut cable may be prevented. But, notwithstanding all these precautions, a buoy does now and then break from its moorings, a

vessel may run it down or the cable may be defective, and when it does break adrift, off goes the buoy wherever the wind and tide may choose. Buoys that have strayed from our coasts have been picked up on the shores of Norway, Denmark, Belgium, and France; some have never been seen or heard of again, and are probably at the bottom of the sea, or may be wedged up in the ice at the North Pole.

Each buoy has its name affixed in large white letters, the sight of which probably suggested to some religious enthusiast, the desirability of scriptural texts being inscribed on them. Such a proposal has actually been made, also one equally wise for connecting all the buoys round the coast with electric wires, and lighting them all at night by electricity. A good many other suggestions respecting buoys have at times been made; gutta-percha and cork have been tried as materials, and a practical test has proved their inferiority to wood or iron.

Our buoys are all well looked after. The officers of the various authorities, particularly those of the three general lighthouse boards, are constantly going about painting this buoy, repairing that, taking away one seriously damaged, and replacing it by another; altering the position of buoys as sands change, and laying new ones where necessary. We have very little cause for grumbling as far as watchful supervision and general efficiency go, but what we do want is uniformity in the colouring arrangements.

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## General View of the Progress of Navigation.

We may conclude that the art of navigation is nearly as ancient as man himself, and that next to agriculture it should occupy the first rank in the arts.

From the first appearance of the human race the residence of man would be fixed on the banks of rivers and lakes, and the shores of the sea, being places more suited than others for his pursuits in life. The necessity of crossing rivers that are not fordable to communicate with his partner man on the opposite shore, would at least suggest the idea of some kind of float, a mere piece of wood or the trunk of a tree for the man to pass over to his fellow, and then two, three, or more pieces to convey his family or goods, and hence the idea of a ship.

Mankind before the flood had an idea of naval architecture and the method of managing vessels, or he could not have conceived the construction of the ark of Noah, in which a portion of the creation were saved at the great disaster of the flood. He who directed the construction of the ark must have had some good notions of hydrostatics, to give it the stability required by its size and the weight it should sustain; and the carpenters which built her, caulkers, etc., would be all practical men skilled in naval construction, because the dimensions given by Moses would produce a vessel of colossal dimensions, which would be a subject of admiration in these days. And not only should

Noah and his sons be supposed to have been somewhat skilled in the art, but something of sailors, for it must be supposed that they would anchor their vessel, or secure her to some tree, in order that she might not be drifted by the currents of the deluge from the place where she was built or which they inhabited, and not be drifted far from land on the cessation of the waters. The race of Noah we may then conclude has perpetuated the art of naval construction; and although the Hebrew legislator has not said a word as to what after the flood happened to his vessel, or indeed anything about her, it may be supposed that the successive generations which inhabited the shores of the Mediterranean would pursue their calling of naval construction.

The most ancient writers on the art of navigation refer to the expeditions of the Phœnicians, and the huge vessels for the transport of people with their effects, with swift boats impelled by oars. It is considered that the art of ship-building was given by the Phœnicians to the Egyptians, who in turn gave it to the Greeks.

In the ancient expeditions of the Phœnicians and Greeks, they evince the knowledge of many kind of vessels, the long ones being the most remarkable, or the pentaconteras which had as many as fifty oars, one of which class it may be presumed was the ship *Argo*, the first probably of her size constructed by the Greeks. This vessel by her novelty and dimensions was destined to take part in the daring expedition of Jason, in the conquest of the *Golden Fleece*.

The Greeks being in possession of all that the Phœnicians and Egyptians knew of naval architecture, would endeavour to improve it, from the necessity of defending her shores from the piratical expeditions of the Asiatics who attacked their islands, and the first trireme on the waters of the Levant soon appeared from the building yards of Corinth. This vessel of war became most in vogue among the Greeks, Carthagenians, and Romans. Upwards of 1,200 vessels are said to have constituted the Greek Armada prepared for the invasion of the Trojans, many of which were impelled by the wind; a certain proof of the great progress of naval architecture which had been made by the Greeks.

In those early days the vessels of antiquity would have no other motive force than that of the oar from the muscular power of man, especially when the navigation was so confined by the coasts of Asia Minor and Egypt in the Egean Sea, and would be employed in piratical expeditions and in pilotage. But from the Phœnicians, or perhaps other more ancient people launching out to the Mediterranean and beyond the column of Hercules, they would necessarily employ the wind as the moving power.

And it is not improbable that the inventor of sails would use a square piece of cloth attached to a spar suspended from the mast, which embrionic apparatus would be the most complicated. Even in these days we see it under a multitude of forms and combinations, even as represented also by old engravings and sculptures. The galley of the middle ages and the xebeque of our own time, would be a reminiscence of the triremes.

The progress of naval construction which has followed that of commerce and navigation was improved among the Latin people; it obtained considerable progress in the middle ages, and having made quite as much in those of modern and in contemporaneous times, it has arrived at a state which is difficult to surpass. Originating on the coast of Syria, where it was favoured by short distances from town to town, it progressed gradually to the west; it passed the Strait of Gibraltar, and on the coasts of Albion it underwent grand transformations to become adapted to its seas. Gradually it crossed the Atlantic, settling itself on the shores of the New World where it made great progress.

Having attained the power of crossing great seas, of doubling Capes Horn and Good Hope, to carry on commerce, and to extend civilization to all parts of the world, large forms were adopted by it as well as distinct models, until it attained a huge size in which tons of capacity vied with miles of distance for the voyage. What a prodigious difference there is between the diminutive caique of the Bosphorus, and that Leviathan of the Thames the *Great Eastern*.

And if from ships of commerce we pass to those of war, we meet with another great variety of form and dimensions due for the most part to powder and guns. The trireme was replaced by the galley, this by brigantines and corvettes, then came frigates, and after these ships of two and three decks, which were supplanted by iron vessels with guns of 200 and 300 pounders.

In point of the means of locomotion we have seen the oar superseded by the sail, and this is gradually being replaced by steam, that prodigious invention applied by Fulton to the propulsion of vessels, and which in our own days we see gradually changing the face of commerce and all naval tactics.

The first steamers with paddle-wheels and afterwards those of the screw, whether of wood or iron, have become the substitute of many sailing vessels, particularly those destined for commerce, carrying passengers or mails, filling all seas with elegant packets. In the Mediterranean they overrun the coasts by lines of steamers of distinct nations; and by the new commercial road, the Suez Canal, the movement will increase attracting to this sea a large concourse of vessels, increasing the number of vessels beyond the strait, which may double the number navigating the strait.

They will however tend to preserve, by the cheapness of transport, an infinite number of vessels of all capacities, and, above all, those beautiful clippers, sailing vessels only, whose rate of progress competes with steamers owing to their fine lines, and the disposal of their sails.

Another powerful assistance has been added to commerce and navigation in the recent application of the electric telegraph. This powerful agent of human activity, which sends words in a few seconds from one end of the world to the other, connected with semaphores also on all the shores of the Mediterranean, enable mariners from sea to communicate with the shore, to send advice to distant parts, and notices to the most distant countries; this has come to be the

grand addition to maritime commerce and the glory of the age. And mankind are not content with navigating the surface of the ocean. No seas remain to be explored, nor corners to be routed out, they may penetrate where they like, and study the bottom of the sea; they may form a submarine orography, and may have their inventions for navigation under water; they may make an artificial atmosphere to breathe under water, they may enlighten the darkness below, and even make use of artillery there.

Others yet more daring look for space by which to make rapid expeditions, and to practice aerial voyages, which, if they have not been of service to commerce, give a great stimulus to science in studying the atmosphere by which we are surrounded. And from these essays, and from so many steps that physics and mechanics make every day, commerce and navigation must profit, the old bonds are strengthened which united races of men which people the shores of the sea, on both sides of the column of Hercules. Again, in point of facilities applied by the modern navigator, they are fabulous when compared with those of ancient times. He of former days made his voyage from cape to cape, from point to point, without the assistance of chart or compass. He had no other index for northing than the Pole star, and that only when it was visible. In those days the whole of nautical science was centred in the pilot; navigation was only made when the wind was favourable, when they could use their sails, or when an entire calm prevailed and the seamen could use their oars: but never in bad weather. The traverses were short, because the Mediterranean is one continual bridge, favoured with islands, and it was sufficient to sail from one port with a fair wind to reach another by nightfall. By night with the position of the stars, and by day with that of the sun, it was known pretty nearly the direction in which to place the vessel's head in order to arrive at a place.

In early days of navigation nothing more than the four winds were known, now called the cardinal points. Later they reckoned eight, then twelve, and lastly thirty-two, according to the compass of Gioja. Maritime charts, when first used, were all drawn by hand, generally on parchment, and were consequently very dear (as well as very bad), the same as the directories, or descriptions of coasts and ports, and all of them manuscript, and very costly.

At length came the day of progress, the invention of the compass; first the loadstone floating in water, then the more complete card, and with this, which was the grand desideratum of the navigator, there were neither gulfs nor bays that were not traversed at all hours of night or day. The printing press soon came to cheapen nautical books, and the guides considerably improved were at the service of the worst of pilots. Then came engraving on wood for the improvement of charts, that soon came to copper, and there was no navigator but who was provided with printed charts, although incorrect in principle on which to mark the ship's course. The instruments of reflection were improved; astronomers made small calculations of use to the pilots, and perpetual tables of the sun's declination, for correcting altitudes, etc.,

and the determination of the latitude. Later still almanacs were printed, repertories of knowledge necessary for pilots to direct the course of the ship, and navigation became raised to a science. The log and line was improved to its present condition. The deviation of the compass discovered, and now a series of observations of errors to be allowed on each course. To the calculation of longitude by the lunar distances have been added the chronometer improved, and so moderate in cost as to be within the means of every pilot of standing. And if many of these instruments are not absolutely required for the navigation of the Mediterranean, they are by those who pass the Straits and go into large enterprises.

To add to modern navigation, and for the security of individual interests, new means have been created. The lights, so scarce in past ages, to indicate danger to the navigator during the night, have multiplied in a most fabulous manner, both on shore and afloat, by the natural light as well as colour; varied by changes as flashing, eclipses, and an infinite variety of apparatus, so as to keep navigators informed; the number reaching to 525 in the Mediterranean lighted this year, without reckoning the Sea of Marmora, or Straits, or Black Sea. These marks have not only to point out danger, but also to point out capes, etc., and the course for ships to follow on making them. A multitude of buoys have also been invented of various forms and colours to point out danger in various places, and that all this may be of service in fogs, bells have been added to those of most importance.

Humane societies have also come to the assistance of modern navigators, to snatch them from the waters of death when in their vessels they have not been able to escape the fury of the elements. On exposed coasts houses of refuge have been erected, the stations of life-boats have been established, guns for carrying lines over wrecks have been employed, life-boats prepared which go off to the succour of vessels in distress. And the benefit does not stop here. The centres of hydrography publish daily Notices to Mariners, which circulate through every land by means of the press. They also require the captains of the port to give them to every vessel. In these Notices an account of every new light is given, or the change made in any erected, accompanied with all particulars. The same is done also in respect of buoys newly established or suppressed, with all particulars that can be of service to the seaman. Other notices of much interest are published, also for the benefit of navigation, from the Hydrographic Offices of London and Paris, in which are also noticed the changes of the weather, announcing to the ports the approach of any tempest or such matter, from which their captains may take precaution about putting to sea, respecting its state and condition, which has often been the means of their avoiding great disasters.

Thus we have endeavoured to lay before navigators a general view of the system of coasts and ports with which they have to deal, and to which a few remaining observations may yet be added, the object of which is to assist navigation at sea. The lights for showing their position which are required of ships to carry, as well of position

as of colour combined, have for their object the power of distinguishing ships at a distance, so as to prevent disastrous collisions; those signals also for fog in which lights are useless that are made with horns and drums, guns, etc., are used by navigators by night as well as by day, have been published in codes of considerable extent by which all their necessary wants are made known.

These systems have all been published with illustrations by governments; with all the resources of science and art; accompanied by charts and plans of ports, and of minute accuracy; the numerous inventions for food and nourishment; tanks of iron for preserving water, and even apparatus for distilling more if required; the mariner the same as the passenger crosses the seas with promptness and safety, free from those contingencies which happened formerly by which he was subjected to perishing at sea from hunger, thirst, or scurvy, or wrecked on some rock not mentioned in charts or directions.

Thus has the nineteenth century gained all these advantages; thus has human nature in general gained at sea, and thus has navigation progressed.

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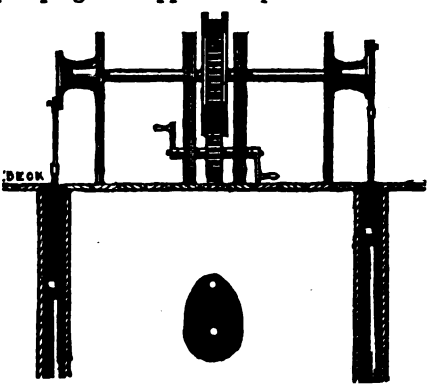
## WORKING SHIPS' PUMPS.

PROBABLY no labour is so fatiguing or disheartening to seamen as pumping. It appears to prostrate their energies to such a degree that it is not an uncommon event to find them deserting the pumps when their lives depend on the water being kept under. There are many hand pumps in merchant ships which require six men to each spell to work them properly, and this cannot be kept up without three of such spells. Now it is very doubtful whether the best manned ship could, in an emergency, spare so many of her able-bodied hands. By the application of the enclosed simple plan a small auxiliary engine would effectually do the work. By fixing the axis in a line with the keel, the pumps could be placed in the different compartments, or the foot of one could be led through the watertight bulkhead. Where an ordinary steam winch is fitted a small disc of metal with a stud on the periphery (see sketch) is all the fitting required. A corresponding gab on the pump spear enables it to be connected in a few seconds. When not in use it can be taken up and a plate screwed over the orifice in the deck.




H.M.S. "*Minotaur*," Portsmouth. W. W. KIDDLE.

## Royal National Life-boat Institution.

A meeting of this institution was held on Thursday, 1st September, at its house, John Street, Adelphi. Mr. Thos. Chapman, F.R.S., V.P., in the chair. There were also present, Sir Edward Perrott, Bart., Colonel Fitzroy Clayton, Captain de St. Croix, and Colonel Palmer. The minutes of the previous meeting having been read, rewards were granted to the crews of different life-boats for going off during gales of wind, and saving life from wrecks on our coasts. The Banff life-boat went out to the brig *Regina*, of Swinemunde, which had parted one cable while at anchor in a perilous position, and brought ashore the crew of nine men. The life-boat had to encounter a heavy sea in going to and from the vessel.

The tubular life-boat *Willie and Arthur*, on the new Brighton Station, also did good service in rescuing five persons from the stranded smack *Rattler*, of Liverpool. The Odd Fellows' life-boat, *Manchester Unity*, was likewise launched in reply to signals of distress, and saved the crews, consisting of eleven men, of two wrecked vessels. Five pounds were also granted to the crew of the fishing smack *Laurel*, of Ramsgate, for rescuing the crew of nine men of the brigantine *Dublin Lass*, of Guernsey, which went on Margate Sands in thick weather, and while the wind was blowing hard from the S.S.W. Various rewards were likewise voted to the crews of other shore-boats for putting off from our coasts on the occasion of shipwrecks, and saving life. Payments amounting to about £2,000 had been made on different life-boat establishments during the past two months.

The Independent Order of Odd Fellows (M.U.) had recently sent the society £50 as their contribution for the past year, towards the maintenance of their life-boat, stationed at Cleethorpes, which has since been instrumental in saving the lives of two shipwrecked crews, Captain A. R. Weston, of the steamship *Surat*, had also transmitted a further collection of £35 18s. he had made on behalf of the *Simla* Life-boat fund. The late Mr. C. Lloyd, of Kennington, who had passed his earlier days at sea, and who had been providentially preserved from drowning upon nine several occasions, had bequeathed the sum of £500 to the institution to defray the cost of a life-boat.

New life-boats had been sent by the institution during the past month to Seaham, Durham, and to Banff, N.B. At both these places demonstrations had been arranged to take place on the occasion of the first launch of the boats; and in addition the Seaham life-boat had been publicly exhibited at Harrogate, en route to its station, its cost having been contributed to the society through the indefatigable exertions of the Misses Carter, of the last named town. It was decided to form a new life-boat station at the mouth of the Boyne, in Ireland.

Reports were read from Captain Ward, R.N., the inspector, and Captain D. Robertson, R.N., the assistant inspector of life-boats to the institution, on their recent visits to the coast, and the proceedings then terminated.

## TABLE for the Reduction of the Sun's Altitude to the Meridian at *Sea*.

| Hour Angle. | | | | LAT. | CORRECTION. | | | | | | | | | | | | | ALT. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *m s* | N. | *m s* | N. | | ′ | ′ | ′ | ′ | ′ | ′ | ′ | ′ | ′ | ′ | ′ | ′ | ′ | |
| 2.0 | 0.1 | 18.0 | 10.6 | 0 | 0·5 | 1·0 | 2·0 | 3·0 | 4·0 | 5·0 | 6·0 | 7·0 | 8·0 | 9·0 | 10·0 | 11·0 | 12·0 | 13·0 | 0 |
| 3.0 | 0.3 | 15 | 10.9 | 4 | 0·5 | 1·0 | 2·0 | 3·0 | 4·0 | 5·0 | 6·0 | 7·0 | 8·0 | 9·0 | 10·0 | 11·0 | 12·0 | 13·0 | 4 |
| 4.0 | 0.5 | 30 | 11.2 | 8 | 0·5 | 1·0 | 2·0 | 3·0 | 4·0 | 5·0 | 6·1 | 7·1 | 8·1 | 9·1 | 10·1 | 11·1 | 12·2 | 13·2 | 8 |
| 5.0 | 0.8 | 45 | 11.5 | 12 | 0·5 | 1·0 | 2·0 | 3·1 | 4·1 | 5·1 | 6·1 | 7·1 | 8·2 | 9·2 | 10·2 | 11·2 | 12·2 | 13·2 | 12 |
| 6.0 | 1.1 | 19.0 | 11.8 | 16 | 0·5 | 1·0 | 2·1 | 3·1 | 4·2 | 5·2 | 6·2 | 7·3 | 8·3 | 9·3 | 10·4 | 11·4 | 12·4 | 13·4 | 16 |
| 30 | 1.4 | 15 | 12.1 | | | | | | | | | | | | | | | | |
| 7.0 | 1.6 | 30 | 12.5 | 20 | 0·5 | 1·1 | 2·1 | 3·2 | 4·3 | 5·3 | 6·4 | 7·4 | 8·5 | 9 6 | 10·6 | 11·7 | 12 8 | 13·9 | 20 |
| 30 | 1.8 | 45 | 12.8 | 22 | 0·5 | 1·1 | 2·1 | 3·2 | 4·3 | 5·4 | 6·5 | 7·5 | 8·6 | 9 7 | 10·8 | 11·9 | 13·0 | 14·1 | 22 |
| 8.0 | 2.1 | 20.0 | 13.1 | 24 | 0·5 | 1·1 | 2·2 | 3·3 | 4·4 | 5 5 | 6·6 | 7·7 | 8·7 | 9·8 | 10·9 | 12 0 | 13·2 | 14·3 | 24 |
| 15 | 2 2 | 15 | 13.4 | 26 | 0·5 | 1·1 | 2·2 | 3·3 | 4·4 | 5·5 | 6·7 | 7·8 | 8·9 | 10·0 | 11·1 | 12·2 | 13·4 | 14·5 | 26 |
| 30 | 2.4 | 30 | 13.8 | 28 | 0·5 | 1·1 | 2·2 | 3·4 | 4·5 | 5·6 | 6·8 | 7·9 | 9·0 | 10·2 | 11·3 | 12·4 | 13·6 | 14·7 | 28 |
| 45 | 2.5 | 45 | 14.1 | | | | | | | | | | | | | | | | |
| 9.0 | 2.6 | 21.0 | 14.5 | 30 | 0·6 | 1·1 | 2·3 | 3·4 | 4·6 | 5·7 | 6·9 | 8·1 | 9.2 | 10·4 | 11·5 | 12·6 | 13·8 | 14·9 | 30 |
| 15 | 2.8 | 15 | 14.8 | 32 | 0·6 | 1·2 | 2·3 | 3·5 | 4·7 | 5·9 | 7·1 | 8 2 | 9·4 | 10·6 | 11·8 | 13·0 | 14·2 | 15·4 | 32 |
| 30 | 2.9 | 30 | 15.2 | 34 | 0·6 | 1·2 | 2·4 | 3·6 | 4·8 | 6·0 | 7·2 | 8·4 | 9 6 | 10·8 | 12·0 | 13·2 | 14·4 | 15·6 | 34 |
| 45 | 3.1 | 45 | 15.5 | 36 | 0·6 | 1·2 | 2·5 | 3·7 | 4·9 | 6·2 | 7·4 | 8·6 | 9·9 | 11·1 | 12 3 | 13·5 | 14·8 | 16·0 | 36 |
| 10.0 | 3.3 | 22.0 | 15.9 | 38 | 0·6 | 1·3 | 2·5 | 3·8 | 5·1 | 6·3 | 7·6 | 8·9 | 10·1 | 11·4 | 12·7 | 14·0 | 15·2 | 16·5 | 38 |
| 15 | 3.4 | 15 | 16.2 | | | | | | | | | | | | | | | | |
| 30 | 3.6 | 30 | 16 6 | 40 | 0·6 | 1·3 | 2·6 | 3·9 | 5·2 | 6·5 | 7·8 | 9·1 | 10·4 | 11·7 | 13·0 | 14·3 | 15·6 | 16·9 | 40 |
| 45 | 3.8 | 45 | 17.0 | 41 | 0·6 | 1·3 | 2·6 | 4·0 | 5·3 | 6·6 | 7·9 | 9·3 | 10·6 | 11·9 | 13·2 | 14·5 | 15·8 | 17·1 | 41 |
| 11.0 | 4.0 | 23.0 | 17.3 | 42 | 0·7 | 1·3 | 2·7 | 4·0 | 5·4 | 6·7 | 8·1 | 9·4 | 10·8 | 12·1 | 13·4 | 14·7 | 16·2 | 17·5 | 42 |
| 15 | 4.1 | 15 | 17.7 | 43 | 0·7 | 1·4 | 2·7 | 4·1 | 5·5 | 6·8 | 8·2 | 9·6 | 10·9 | 12·3 | 13·6 | 15·0 | 16·4 | 17·8 | 43 |
| 30 | 4.3 | 30 | 18.1 | 44 | 0·7 | 1·4 | 2·8 | 4·2 | 5·5 | 6 9 | 8·3 | 9·7 | 11·1 | 12·5 | 13·9 | 15·3 | 16·6 | 18·0 | 44 |
| 45 | 4.5 | 45 | 18.5 | | | | | | | | | | | | | | | | |
| 12.0 | 4.7 | 24.0 | 18.9 | 45 | 0·7 | 1·4 | 2 8 | 4·2 | 5·6 | 7·1 | 8·5 | 9·9 | 11·3 | 12·7 | 14·1 | 15·5 | 17·0 | 18·4 | 45 |
| 15 | 4.9 | 15 | 19.3 | 46 | 0·7 | 1·4 | 2·9 | 4·3 | 5·7 | 7·2 | 8·6 | 10·1 | 11·5 | 12·9 | 14 4 | 15·8 | 17·2 | 18·6 | 46 |
| 30 | 5.1 | 30 | 19.7 | 47 | 0·7 | 1·5 | 2·9 | 4·4 | 5·8 | 7·3 | 8·8 | 10·2 | 12·7 | 13·2 | 14·6 | 16 1 | 17·6 | 19·1 | 47 |
| 45 | 5.3 | 45 | 20.1 | 48 | 0·7 | 1·5 | 3·0 | 4·5 | 6·0 | 7·5 | 9·0 | 10·4 | 12·9 | 13·4 | 14·9 | 16·4 | 18·0 | 19·5 | 48 |
| 13.0 | 5.5 | 25.0 | 20.5 | 49 | 0·8 | 1·5 | 3·0 | 4·5 | 6·1 | 7·6 | 9·1 | 10·6 | 12·2 | 13·7 | 15·2 | 16·7 | 18·2 | 19·7 | 49 |
| 15 | 5.7 | 15 | 20.9 | | | | | | | | | | | | | | | | |
| 30 | 5.9 | 30 | 21.3 | 50 | 0·8 | 1·5 | 3·1 | 4·6 | 6·2 | 7·8 | 9·3 | 10·9 | 12·4 | 14·0 | 15·5 | 17·0 | 18·6 | 20·1 | 50 |
| 45 | 6.2 | 45 | 21.7 | 51 | 0·8 | 1·6 | 3 2 | 4·8 | 6 3 | 7 9 | 9·5 | 11·1 | 12·7 | 14·3 | 15·9 | 17·5 | 19·0 | 20·6 | 51 |
| 14.0 | 6.4 | 26.0 | 22.2 | 52 | 0·8 | 1·6 | 3·2 | 4·9 | 6·5 | 8 1 | 9·7 | 11·4 | 13·0 | 14·6 | 16·2 | 17·8 | 19·4 | 21·0 | 52 |
| 15 | 6.6 | 15 | 22.6 | 53 | 0·8 | 1·6 | 3·3 | 5·0 | 6 6 | 8·3 | 10·0 | 11·6 | 13·3 | 14·9 | 16·6 | 18·2 | 20·0 | 21·6 | 53 |
| 30 | 6.9 | 30 | 23.0 | 54 | 0 8 | 1·7 | 3·4 | 5·1 | 6·8 | 8·5 | 10·2 | 11·9 | 13·6 | 15·3 | 17·0 | 18·7 | 20·4 | 22·1 | 54 |
| 45 | 7.1 | 45 | 23.5 | | | | | | | | | | | | | | | | |
| 15.0 | 7.4 | 27.0 | 24.0 | 55 | 0·9 | 1·7 | 3·5 | 5·2 | 7·0 | 8·7 | 10·4 | 12·2 | 13·9 | 15·7 | 17·4 | 19·1 | 20·8 | 22·5 | 55 |
| 15 | 7.6 | 15 | 24.4 | 56 | 0·9 | 1·8 | 3·6 | 5·3 | 7 1 | 8·9 | 10 7 | 12·5 | 14·3 | 16·1 | 17·9 | 19·7 | 21·4 | 23·2 | 56 |
| 30 | 7.9 | 30 | 24.8 | 57 | 0·9 | 1·8 | 3 6 | 5 5 | 7·3 | 9·2 | 11·0 | 12·8 | 14·7 | 16·5 | 18·3 | 20·1 | 22·0 | 23·8 | 57 |
| 45 | 8.1 | 45 | 25.3 | 58 | 0·9 | 1·9 | 3·7 | 5·6 | 7·5 | 9·4 | 11·3 | 13·2 | 15·1 | 17·0 | 18·9 | 20·8 | 22·6 | 24·5 | 58 |
| 16.0 | 8.4 | 28.0 | 25.7 | 59 | 0 9 | 1·9 | 3·9 | 5·8 | 7·7 | 9·7 | 11 6 | 13·6 | 15·5 | 17·5 | 19·4 | 21·3 | 23·2 | 25 1 | 59 |
| 15 | 8.7 | 15 | 26.2 | | | | | | | | | | | | | | | | |
| 30 | 8.9 | 30 | 26.6 | 60 | 1·0 | 2·0 | 4·0 | 6·0 | 8·0 | 10·0 | 12·0 | 14 0 | 16 0 | 18·0 | 20·0 | 22·0 | 24 0 | 26·0 | 60 |
| 45 | 9.2 | 45 | 27.1 | 61 | 1·0 | 2·1 | 4·1 | 6·2 | 8·2 | 10·3 | 12·4 | 14·4 | 16·5 | 18·5 | 20·6 | 22·7 | 24·8 | 26·9 | 61 |
| 17.0 | 9.5 | 29.0 | 27.6 | 62 | 1·1 | 2·1 | 4·2 | 6·4 | 8·5 | 10·6 | 12·8 | 14·9 | 17·0 | 19·2 | 21·3 | 23·4 | 25·6 | 27·7 | 62 |
| 15 | 9.8 | 15 | 28.1 | 63 | 1·1 | 2·2 | 4·1 | 6·6 | 8·8 | 11·0 | 13·2 | 15 4 | 17·6 | 19·8 | 22·0 | 24·2 | 26·4 | 28·6 | 63 |
| 30 | 10.1 | 30 | 28.6 | 64 | 1·1 | 2·3 | 4·5 | 6 8 | 9·1 | 11·4 | 13 7 | 16·0 | 18·2 | 20·5 | 22·8 | 25·1 | 27·4 | 29·7 | 64 |
| 45 | 10.3 | 45 | 29.0 | 65 | 1·2 | 2·4 | 4·7 | 7·1 | 9·4 | 11·8 | 14.2 | 16·5 | 19·9 | 21·3 | 23·6 | 26·0 | 28·4 | 30·8 | 65 |

### EXPLANATION.

I.—For the sun's Hour Angle take out N.

II.—Seek for N. in a line with the degree of Latitude; then, in the *same* column, in a line with the degree of altitude, will be found the correction, which, *added* to the observed altitude, gives the meridian altitude.

### EXAMPLE.

Given, H.A. 14 *m.* 45 *s.*, Lat. 45°, Observed Altitude, 30° 20′.

I.—14 *m.* 45 *s.* gives 7·1 for N.

II.—In a line with lat. 45° will be found 7·1, and in the *same* column, in a line with Altitude 30°, will be found 5·7. Hence we have

| | | | |
|---|---|---|---|
| Observed Alt. | 30° | 20′ | 0″ |
| Corr. | + | 5 | 42 |
| Meridian Alt. | 30 | 25 | 42 |

*Note.*—If N. should exceed the greatest number found in a line with the latitude, it shows that the observation is too far from noon.

## Report on Harbour of Porthdynllaen.

*By Lieut. W. L. Sheringham, R.N., Surveying the Coast of Wales.*

*Return to an order of the Honourable the House of Commons dated May 7th,* 1838.

In the *Western Morning News* of the 24th of September appears the following paragraph:

"Steps are in contemplation in Dublin for opening up a route by which travellers between Dublin and London can secure a greater degree of safety and economy without sacrificing either comfort or time. It is proposed to run a line of steamers from Kingstown or Wicklow to Porthdynllaen in Wales, from whence, *vid* Shrewsbury, the route is shorter, cheaper, and more interesting than that from Holyhead. Porthdynllaen is only a few miles further than Holyhead from Kingstown, and is only sixty miles from Wicklow."

It was in the early days of railway transit and when changes were occurring, respecting the easiest mode of that transit, that the question of making the Irish packet port for this country at Porthdynllaen instead of Holyhead was seriously considered. A naval officer (Lieutenant now Admiral) Sheringham was directed to survey and report on the subject, and we believe that it was more the effect of party and the already established transit, which saved the mail for Holyhead, than the real merit of that place. But so it was, right or wrong, the Holyhead line was adopted, and things remained in point of place just as they were. In those days we printed Lieutenant Sheringham's report, and as this report may promote the objects in view, as appears by the above paragraph, we here annex it from our volume for 1838.

In the year 1836 we also printed some reasons refuting the reasoning of Mr. William Dawson, which reasons clearly shewed the superiority in position of Porthdynllaen over Holyhead, and which may be useful for reference in another number. Meanwhile here is Lieutenant Sheringham's report.

Copy of a Report on the Harbour of Porthdynllaen, made in pursuance of the Report of the select committee appointed to enquire into the existing communication between London and Dublin, and to consider what improvements could be made therein.

Porthdynllaen, in the south part of Carnarvon Bay, is formed by a narrow rocky projection of the coast from sixty to a hundred feet high, the north extreme point of which bears—

| | Compass. | | Geo. Mls. |
|---|---|---|---|
| From Bardsey Islands .. .. | N.E. by E. | Distance | 14 |
| Holyhead (South Stack Light-House) .. .. .. .. | S. by W. ½ W. | „ | 22¾ |
| Carnarvon Bar (entrance to Menai Strait) .. .. | S.W. by W. ½ W. | „ | 12½ |
| Liverpool viâ Holyhead .. | .. .. .. | „ | 87 |

| | | | Geo. Miles. |
|---|---|---|---|
| Liverpool viâ Menai Strait .. .. .. .. | Distance | | 67 |
| Smalls Lighthouse.. .. .. | N.E. by E. | „ | 80 |
| Kingstown Harbour, Dublin .. .. .. | | „ | 65 |
| Wicklow .. .. .. .. .. .. .. | | „ | 58 |

In an easterly direction, from above extreme point, Porthdynllaen Bay is about 2,240 yards wide, and its greatest extent at right angles to that line of direction is rather more than 1,000 yards.

The bay is generally clean, with the exception of a large rock, called Carrig-y-Chwislen, which is bold to, and uncovers the last quarter ebb. The dimensions of this rock, are, from east to west, its longest extent one hundred feet; and its breadth, from north to south, about fifty feet. It lies E. by compass from the extreme point above mentioned, leaving a clear sound, with five fathoms depth between it and the point, and distant therefrom 1,280 feet.

The depth of water in Porthdynllaen Bay at low water springs, is four and a half fathoms and over clay, that depth decreasing gradually to the sandy beach which bounds it.

The extent of the bay, at least that portion of it which may be made available for shipping, contains an area of about one hundred and ten or one hundred and fifteen acres, throughout the whole of which space the least water would be two fathoms at low water springs.

The general set of the tide in Porthdynllaen Bay is from the eastward along the eastern shore, and through the sound above-mentioned, continuing at least nine hours of the twelve. In the sound at spring tides the stream has a velocity of about three knots, but in the bay itself little or no tide is felt, vessels riding flood with their heads to the westward, only during the two hours of the tide.

It is high water at Porthdynllaen at eight hours thirty minutes, on full and change days, and the rise at springs is sixteen feet.

On the west side of the bay convenient quays and a pier might be built, where large steam vessels, drawing fifteen feet water, might always lie afloat, to the number of eight or more, provided those quays were protected by a breakwater connected with the above-mentioned rock, "Carrig-y-Chwislen:" and so placed with relation to the pier, that a clear channel should be left through the sound for the passage of vessels into and out of the harbour without exposing them to any body of sea. With such protection I have no doubt that vessels lying alongside of the quay would invariably be in smooth water.

As there would be no backwater or scouring action of the tide, except through to seaward, which would be favourable, there is reason to conclude that the quays would be constantly kept clear from all deposit; a consideration of great weight in the formation of a harbour.

This harbour will be peculiarly easy of access or departure, as the Rivell Mountain would ensure a good land-fall, and from the nature of its approach and its excellent shelter, steam vessels would leave and arrive at their moorings in smooth water, and in stormy weather

they might make a slant out instead of being obliged to stem a heavy breaking sea.

In the event of any accident happening to the engines, the harbour might be regained under canvas.

Having thus described Porthdynllaen, and pointed out its peculiar advantages of approach and departure, its excellent shelter, its clear anchorage, and the facility it affords for the construction of quays and piers, I may venture to give my opinion that it is well calculated for a packet station, and there is no other part on the west coast of Wales which could be so well or so economically adapted to that purpose.

The foregoing advantages must also have great weight, when considering it in the light of a harbour of refuge. The whole coast of Wales included between Milford and Liverpool presents no place of safety for which a vessel in distress can run in bad weather; St. Tudwall's Roads being by no means, under many circumstances a safe roadstead, and all the ports being bar harbours, to be taken only in the day time near the top of high water, and then with some difficulty, if therefore, it be desirable that the trade of St. George's Channel should have a harbour of refuge on this coast, then there is none so well adapted to that purpose as the Bay of Porthdynllaen might be made. It is situated nearly midway between the Smalls Lighthouse and Liverpool; it has an excellent light (Bardsey) within fourteen miles of it on one side, and a second light (the Stack) within twenty-three miles of it on the other side; it has an approach perfectly free from shoals of any kind, and the adjacent mountains being the most remarkable in North Wales, would serve as infallible marks to point it out.

As vessels navigating this channel usually draw under fifteen or sixteen feet, ample room might be found in Porthdynllaen by a judicious harbour-master for ten large vessels, while the smaller ones, such as the ordinary class of coasters, might either be anchored further in shore, a portion of the Bay being set apart for that purpose, or they might take the ground in perfect safety.

As a refuge harbour, however, it would only serve on a small scale; yet though not calculated for the reception or rendezvous of a very large number of vessels, there is no other place on this coast possessing similar advantages. It has also been urged against Porthdynllaen as a refuge harbour, that it is too deeply seated in Carnarvon Bay; but such a condition appears to me in its favour, as it is more likely to meet the necessities of distressed ships, and it is not so deeply embayed as to prevent them from resuming their voyage with facility when required.

Porthdynllaen even in its present state affords shelter to the coasters in most weathers; it is open only to winds from north to east; these winds do not bring with them a heavy sea, having a drift only of twenty-three miles and several shallow banks break its force from that quarter.

The heaviest sea brought into Porthdynllaen is by winds from W.N.W. to N.N.W., against the effects of which it is absolutely

necessary to guard; this however, would be effectually done by means of the pier and breakwater above alluded to, if properly constructed and judiciously placed by a good engineer.

(Signed) W. L. SHERINGHAM, Lieut. R.N., and Surveyor.

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## ANOTHER BIT OF A SAILOR'S MIND.*—*Bit the Second.*

THE law as to what vessels may take passengers as a short ship (say three to one hundred tons) is in a very doubtful position. Neither magistrates, collectors, shipping masters, or consuls, are agreed on the subject.

A new round has lately been taken by sailing vessels, forced out of the Indian trade by the Suez Canal; viz., coals to South America, and guano to a French port, where as the detention is long the crews are discharged, and while they have cash apply to a return screw collier for a cheap passage. This the Board of Trade tries to stop in its great solicitude for the sailors' welfare, I suppose. For after he has run through all his money and becomes penniless and diseased, the same steamer *must* take him home by a consul's order, at the low price of two or three shillings at most, but as it will cost twice the money in cab-hire to obtain it, it is generally left alone.

Why the steamer that is obliged to carry the pauper sailor is not allowed to carry him when he can pay his passage is more than "a fellow" can understand. There is no Board of Trade survey boat on the station alluded to. I don't see it at all likely Board of Trade certificates for passengers will become general in cargo steamers, not on the score of expense but of humbug and detention. Reasonable men would think the best inspection would be a sea passage or trial trip instead of a few days' detention every six months.

The donkey boiler now becoming general in sailing vessels, is as dangerous to the few passengers they may carry, as the larger boiler of a steamer, particularly as they have no regular engineer in charge.

The absurdity of condemning the steamboat captain to solitary confinement while at sea, and the cruelty inflicted on some of Her Majesty's subjects was exemplified in the late rising in Spain. When a town was put under martial law, a steamer was about leaving for England, and the wives and children of some English wanted to get out of the danger. They could hardly be made to believe that any English law is so cruel as to prevent them embarking. A German going to join the army, when told to go through France, took a sight at his informant, and coolly stowed himself away until the steamer was outside.

Foreign boats with no Board of Trade certificates have now the monopoly of the passenger traffic, and this is called *free* trade in these days.

* For Bit the First see page 393.

I note that an unfortunate mate of a ship has penal servitude for enforcing discipline with his revolver. Probably he had to control some fifteen to twenty men, each armed with a butcher's knife in a sheath; possibly he quelled an incipient mutiny. Had Nelson lived in our time and been in the merchant navy, he would have served more than half his time on the treadmill, as he stood no nonsense from his sailors. Ships commanded by all hands are not safe, and only pleasant to the cock of the forecastle and bully of the mess, who seems to be having his day just now in our merchant navy, for imprisonment only makes them worse!

The sailor is the only subject of Her Majesty that gets many weeks in jail for oversleeping himself, being caught in the trap the law lays for him, by pretending to ship him miles away from the ship. Given the number of public houses between the shipping office and the ship, and it can be easily calculated the probability of Jack turning up at his time, and the state of beer he is likely to be in, for what he calls *sailing trim*.

When a sailor misses his ship instead of making another jailbird, the government should pay the amount of his advance note, and take him into their own service for some time. This would teach him cleanliness and naval discipline, *both of which our merchant sailors have the greatest horror of*. I am sorry to see this in a late publication, all about ships and sailors is likely to last. I should prefer a man having to work out his hundred pound fine in the same way, instead of six months in jail, for smuggling a few ounces of pigtail for his own use. "Thou shalt not muzzle the ox that treadeth out the corn," which when found make a note of saith

"CAPTAIN CUTTLE."

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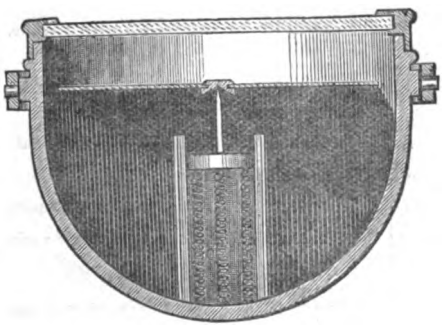
## A STEADY COMPASS FOR SHIPS.



When a steam ship is light and running before a high sea the racing of the engines renders an ordinary compass almost useless. The liquid compass fails to meet this defect, and I had one constructed on the enclosed plan, which greatly reduced the swing. The principle is that of an elaborately fitted carriage, and speaks for itself.

W. W. KIDDLE,
Staff Commander H.M.S. *Minotaur*.

Portsmouth, June 28.

# Nautical Notices.

## Particulars of Lights Recently Established.

(Continued from page 504.)

| Name. | Place. | Position. | F. or R. | Ht. in Ft. | Dist seen Mls | [Remarks, etc. Bearings Magnetic.] |
|---|---|---|---|---|---|---|
| 73. Puerto Rico | Buoys in | Mayaguez B. | ... | ... | ... | See Notice No. 73. |
| Cape Honduras | Truxillo | Pt. Castilla | F. | 39 | 11 | See Ditto |
| 74. Shoal off Mocha | ... ... ... | ... ... ... | ... | ... | ... | See Notice No. 74. |
| 75. North Coast of Germany | Discontinuance | of Lights | | | | |
| 76. Yedo Bay | Entrance of Tsikidji | Channel | F. | 53 | 9 | Red established. |
| Buoys for Shoal off | Kawa-saki | ... ... ... | ... | ... | ... | See Notice No. 76. |
| Oo-sima, Nipon | South Coast | ... ... ... | R. | 130 | 18 | Established 8th July, Interval of revolution half a minute. |
| Siwomisaki | ... ... ... | 33° 26′ N. 135° 46½′ N. | F. | 155 | 20 | Established 8th July, temporary. |
| Iwo-sima N. pt. | Entrance Nagasaki | 32° 43′ N. 129° 46′ E. | F. | 205 | 15 | Established 14th July, temporary. |
| 77. Tendra Peninsula | Black Sea | ... ... ... | ... | ... | ... | See Notice No. 77. |
| Anciola point | Cabrera Is. | Balearic Is. | R. | 404 | 20 | Est. 15th Aug., 1870. Int. 30 secs. |
| 78. Buoy on Smith Knoll | ... ... ... | ... ... ... | ... | ... | ... | See Notice No. 78. |
| Cardigan Bay Light vessel | To be moved 3 miles | to N.W. | ... | ... | ... | Intended. |
| Youghal Tide Light | Red | ... ... ... | ... | ... | ... | See Notice No. 78. |
| 79. Castellamare Light | ... ... ... | ... ... ... | ... | ... | ... | See Notice No. 79a. |
| Porer Rock | ... ... ... | ... ... ... | F. | 27 | 5 | Established 20th July. Red. |
| Santa Cruz | Teneriffe | ... ... ... | ... | ... | ... | Re-established. |
| 80. Gironde R. | Lights altered | in Position | ... | ... | ... | See Notice No. 80. |
| 81. Shingles spit | Beacon is | replaced | | | | |
| 82. Indian Ocean 748b | In upper margin | the 55° | ... | ... | ... | and 64° are both 1° too far west. |
| 83. Tylatiap | Kounbangan | Java S. Co. | R. | 665 | 20 | Est. Sept., 1870. Every minute. |
| Jason Rock | N.W. of the | Thousand I. | ... | ... | ... | See Notice No. 83. |
| Clotilde Rock | Off Sandakan | Har. Borneo | ... | ... | ... | N.E. Coast. See also Notice 83a. |
| Laurel Rock | Ditto | Ditto | ... | ... | ... | Ditto, No. 83b. |
| 84. Cape Ivi | Algeria C. | Mediter. | Fl. | 389 | 26 | Est. 15th Aug., 1870. See No. 84. |
| Lefchimo | Light vessel | ... ... ... | ... | ... | ... | Temporarily discontinued. |
| Cephalonia Buoys | ... ... ... | ... ... ... | ... | ... | ... | See Notice No. 84a. |
| 85. Souter point | England | East Coast | Fl. | ... | ... | To be established 1st December. |
| Tynemouth Castle | Ditto | Ditto | R. | ... | ... | To be Red, from revolving White. |
| Cardigan Bay Light vessel | Change of | Position | ... | ... | ... | See Notice No. 85. |
| 86. Sandy Cape | Queensland | Australia | R. | 400 | 27 | Est. Sept. 1870. Period of rev. 2 min. |
| Campbell reef | Position | 18° 20′ S. 142° 30′ E. | ... | ... | ... | Awash at low water. |
| 87. Escremenae Point | Gulf St. Lawrence | ... ... ... | ... | ... | ... | Shoal extends 2½ miles from light. |
| Port St. Andrew | B. of Fundy | ... ... ... | ... | ... | ... | Beacon gone. |
| Matinicus Rk. | U. States | Maine | ... | ... | ... | Has Fog Signal. |
| 88. Point Grosa | Ivica N.E. point | Balearic Is. | Int. | 180 | 15 | Est. 15th Sept., 1870. Eclipsed every 4 minutes. |
| 89. Farewell spit | Middle Is. | N. Zealand | R. | 120 | 17 | Est. 17th June, 1870. Once a min. |
| Cook Strait Nugget Point | Molyneux B. | South Point | F. | 250 | 23 | Established 4th July, 1870. |
| Hapuka Rock | Cook Strait | N. Zealand | ... | ... | ... | See Notice No. 89. |
| Flat Rock off Kawau Is. | Hauraki G. | Ditto | ... | ... | ... | See Notice No. 89a. |
| Sunken Rocks | B. of Plenty | Ditto | ... | ... | ... | See Notice No. 89b. |
| 90. Port Said | Mediter. | Egypt Coast | ... | ... | ... | Lights Est. See Notice No. 90. |
| Ditto, E. Bank | Red buoy | ... ... ... | ... | ... | ... | See Notice No. 90a. |
| 91. Damietta Mouth of | the Nile | Dangers | ... | ... | ... | See Notice No. 91. |

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

No. 73.—WEST INDIES—PUERTO RICO.—*Buoys in Mayaguez Bay.*—The Spanish Government has given notice, that the following buoys have been placed on the Les Manches and Allart Banks, Mayaguez Bay, west end of Puerto Rico Island, to mark the channel:—1. On the south end of Les Manches inner shoal in 3½ fathoms. 2. On the north end of the Allart Bank in 2½ fathoms S.S.E. ¼ E. from the Les Manches buoy.

No. 73a.—*Fixed Light on Cape Honduras.*—The tower on Cape Honduras is 70 yards from the shore, position, lat 16° 1′ N., long 86° 3¼′ west from Greenwich.

[*Bearings are Magnetic. Variation* 2¼° *Easterly in* 1870.]

No. 74.—RED SEA.—*Shoal off Mocha.*—Information has been received of the existence of a shoal patch, hitherto unknown, lying a league to the westward of the shoal ground off the town of Mocha, and near the fairway track of shipping bound up or down the Red Sea. The shoal, which was sounded over by the Master of the steam ship *Priam* on her recent voyage from Suez to Singapore, is a bank of white sand, about half a cable long and 30 feet broad; it has 18½ feet on its central part, with 11 fathoms at either end. From the shoal, the north end of Mocha bore E.N.E., and Zee Hill S.E. ½ S. These bearings place it about 7 miles from the land.

[*All bearings are Magnetic. Variation* 3½° *Westerly in* 1870.]

No. 76.—*Buoys to mark Shoal off Kawa-saki.*—Also, that two buoys have been moored outside the bank off Kawa-saki, Yedo Bay:—1. The southernmost, a *red* buoy *with cage*, is moored in 6 fathoms, with Treaty Point bearing S.W. ½ W., Kawa-saki N. ½ W., and Bansu Hana E.S.E. southerly. 2. The northernmost, a *black* buoy *with cage*, is moored in 6 fathoms, with Kawa-saki bearing west, Noko-gawa entrance N. ¾ E., Bansu Hana S.E. ½ E., and the southern buoy S.W. ¾ S.

No. 77.—BLACK SEA.—*Position of Tendra Peninsula Lighthouse.*—Information has been received that the position of the lighthouse on Tendra Peninsula is not at the extremity of the point, as placed on the charts, but lies S. by W. ¼ W. 2¾ miles from that position, or in lat. 46° 19′ 25″ N., long. 31° 31′ 30″ east from Greenwich. Also, that a beacon stands in the previously supposed position of the lighthouse.

No. 78.—ENGLAND.—*Buoy on Smith Knoll.*—The Trinity House, London, has given notice that, in the month of October, 1870, a *black* buoy *with staff and globe* will be placed at the south end of the shoal part of Smith Knoll, off the coast of Norfolk, and that further notice will be given when the buoy is placed in position.

No. 78a.—IRELAND, SOUTH COAST.—*Tide Light, Youghal Harbour.*—The Office of Irish Lights has given notice, that on and after the 1st day of November, 1870, a *red* light will be exhibited from a window in the tower of Youghal lighthouse, *two* hours before high water to *one and a half* hours after high water, and visible from N.E. by N. to N. by E. ½ E., or through an arc of 18 degrees.

[*All bearings are Magnetic. Variation* 24½° *Westerly in* 1870.]

No. 79.—MEDITERRANEAN, GULF OF NAPLES.—*Mole Extension Light at Castellamare.*—The Italian Government has given notice, that from the

20th day of July, 1870, a *fixed red* light will be suspended from a pole at the extremity of the Mole in construction, and 92 yards from the harbour light.

No. 79a.—ADRIATIC, PROMONTORE.—*Additional Light from Porer Lighthouse.*—The Austrian Government has given notice, that from the 20th day of July, 1870, a *fixed red* light, 27 feet above the sea, will be exhibited from the lighthouse on Porer Rock, to denote the position of the *sunk rock* lying to the southward of it. The light is visible through an arc of 11½°, and its extremes pass 220 yards on either side of the shoal; in clear weather it should be seen from a distance of 5 or 6 miles.

No. 80.—*Alteration of Lights, Gironde River.*—With reference to Notice to Mariners No. 31, dated 27th May, 1869 (in page 389, vol. 1869), respecting an alteration of lights in the Gironde River:—The French Government has given notice, that the new lighthouses being completed, the following lights will be exhibited, and changes effected, from the 1st day of September, 1870; viz.:—

*Palmyre Light.*—From a lighthouse on the dunes of Point de la Palmyre, a *revolving* light, showing *red and green* alternately *twenty seconds*, elevated 167 feet above the level of high water, and in clear weather should be seen from a distance of 14 miles. This light is visible through an arc of 45 degrees from the westward. The tower, 99 feet high, is of iron, built on three pillars; the upper part painted black, the lower part and pillars painted white. Position, lat. 45° 40′ 52″ N., long. 1° 8′ 36″ west from Greenwich.

*Grand Banc Lights.*—From a light-vessel moored inside the Grand Banc, two *fixed* white lights from separate masts, one elevated 34 feet above the sea, the other 23 feet; in clear weather they should be seen from a distance of 11 miles. The light-vessel is moored in 8 fathoms south-east of La Mauvaise shoal in lat. 45° 39′ 52″, long. 1° 15′ 51″ west.

*St. George and Sulzac Lights.*—Brilliancy greatly increased; in clear weather they should be seen from a distance of 18 miles.

*Falaise and Pontaillac Lights*—will be discontinued.

*Terre Negre Light*—will be changed from a fixed white light to a *fixed green* light, invisible from seaward, from a line drawn through the N.E. buoy of the Monrevel Bank, northward.

*Richard Light*—is a *fixed red* light, will be increased in brilliancy and exhibited from a tower 115 feet west of its present position; the light is elevated 105 feet above the sea, and in the direction of Tallais Light it should, in clear weather, be seen from a distance of 16 miles.

*Directions.*—Vessels entering the Gironde by the Passe du Nord by night should approach by keeping the lights on Point de la Coubre and Palmyre in a line until the light-vessel on the Grand Banc is in one with the Cordouan Light. Then keep these two in line until near the light-vessel, pass it to the northward, then steering eastward until the leading lights of St. George and Sulzac are in one, which, as formerly, are to be kept so until the lights of Tallais and Richard are in one.

[*All bearings are Magnetic. Variation* 1½° *Easterly in* 1870.]

No. 83.—JAVA SEA.—*Jason Rock*—Also, that a rock, probably that formerly known as the *Jason Rock*, lying to the north-westward of

Thousand Islands, has been sounded on by the Master of the English ship *Tewkesbury*. The rock is described as being 40 feet in diameter with 13 feet on its shoalest part and 10 fathoms around it. The following bearings were taken from it, Pulo Peblakan, S.E. by E. ½ E.; Pulo Doea, E. ½ N.; and North Watcher, N.E. ¾ N.: these bearings place the danger in lat. 5° 25′ 30″ S., long. 106° 17′ 20″ east from Greenwich, or two miles from the position formerly assigned it.

No. 83a.—SULU SEA, BORNEO, N.E. COAST.—*Rock off Sandakan Harbour.*—A rock has been discovered by the Commander of the Italian corvette *Princess Clotilde* off the entrance of Sandakan Harbour, N.E. coast of Borneo. This rock (*Clotilde Rock*) rises about 10 feet above the level of low water, and is about 100 yards long N.N.W. and S.S.E. and about 20 yards broad. From the rock Baguan Island bears S.E. by S., southerly 9¼ miles, and Taganac Island S. by W. ½ W. 9 miles: these bearings place it in lat. 6° 9·8′ N., long. 108° 0·25′ east. At about 100 yards round the rock a depth of from 8 to 11 fathoms was found.

No. 83b.—LAUREL ROCK.—Also, that the position of the Laurel Rock in the same locality is 4 miles E. by N. ¼ N. from that assigned to it on the charts, and from it Baguan Island bears S.W. by S., westerly, 4 miles. This rock is about double the height and size of Clotilde Rock.

[*All Bearings are Magnetic. Variation* 1° *Easterly in* 1870.]

No. 84.—*Flashing Light on Cape Ivi.*—With reference to Notice to Mariners No. 46 (page 321), respecting the intended exhibition of a light on Cape Ivi:—The French Government has given further notice, that from the 15th day of August, 1870, the light will be exhibited. The light is flashing *every four seconds*. The tower, built of stone, is situated on the middle of the declivity of Cape Ivi, 650 yards from the shore; position, 36° 5·25′ N., long. 0° 13·3′ east from Greenwich.

No. 84a.—CEPHALONIA.—*Replacement of Buoys.*—Information has been received that the *black* buoy with *red* top, of the Kalafau Rock off St. Georgio Point, Port Argostoli, and the buoy off Cape Monda or Scala, have been replaced in their former position.

No. 85.—*Alteration in position of Cardigan Bay Light-vessel.*—Also, with reference to Notice to Mariners No. 78, (foregoing) dated 4th August, 1870, respecting an intended alteration in position of Cardigan Bay light-vessel:—

The light-vessel has, in accordance with that notice been moved 4 miles N.W., and now lies in 35 fathoms at low water springs, in lat. 52° 24′ N., long. 5° 0′ W. From the light-vessel the South Bishop lighthouse bears S.W. ¼ W. 36 miles, and Bardsley lighthouse N.E. westerly 22½ miles.

[*All bearings are Magnetic. Variation* 23° *Westerly in* 1870.]

No. 89.—*Hapuka Rock.*—An iron beacon, with cage, painted red, has been placed on Hapuka Rock, Astrolabe Roads, Tasman (Blind) Bay. This rock is 2 feet out of the water at low water springs.

No. 89a.—NORTH ISLAND, HAURAKI GULF.—*Beacon on Flat Rock, off Kawau Island.*—Also, that an iron beacon, *with cage surmounted by a diamond*, painted black, has been placed on Flat Rock, eastward of Kawau Point, Kawau Island.

No. 89b.—*Sunken Rocks in Bay of Plenty.*—Also, that a dangerous rocky patch with about 5 feet on it at low water springs has been discovered in the fairway of vessels passing between Motiti Island and Astrolabe Reef, bound to or from Tauranga.

The patch extends about 200 feet, and from it Mongonui Hill bears S.W. by W. ¼ W. 9¾ miles, and north point of Motiti Island E. by S. 2¼ miles.

Also, a rock about three quarters of a mile N. by E. ¼ E. from Schooner Rocks, has been seen breaking.

[*All Bearings are Magnetic. Variation* 14¼° *Easterly in* 1870.]

No. 90.—*Lights at Port Said.*—The Suez Canal Company have placed 4 floating lights to mark the narrow channel within the breakwaters, leading to the Basins, at Port Said. After passing the red light on the extreme of the western breakwater, two *red* lights are to be kept on the starboard hand and two *white* ones on the port hand.

No. 90a.—*Buoy on the East Bank, Port Said.*—Also, that a *red* buoy has been placed on the east bank of the Admiralty Chart (Banc des Porteurs), Port Said Entrance.

*Note.*—Vessels are recommended not to pass at a less distance than half a mile to the northward of the buoy.

No. 91.—*Dangers off the Damietta Mouth of the Nile.*—With reference to Notice to Mariners No. 26, (see page 207) dated 24th February, 1870, wherein Mariners are cautioned against approaching Damietta light too closely on account of off-lying sands and an occasional indraught; information has been received of frequent casualties occurring to vessels, in consequence of the light at the Damietta Mouth of the Nile being mistaken for that at Port Said, though the two places are 29 miles apart!

Attention is called to the fact that the light within the Damietta mouth, exhibited from a white lantern, supported by three iron columns, painted black, and white in horizontal bands, is a *revolving* white light, attaining its greatest brilliancy *every minute*, whilst that at Port Said (an electric light), exhibited from a light grey tower, shows a *flash every three seconds;* both lights being visible in clear weather from a distance of 20 miles.

Mariners are again cautioned not to approach the Damietta coast too closely; more especially as the lying-off dangers are said to be further from the shore than shown on the Admiralty charts, and the precaution of sounding should never be omitted in passing this low coast.

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## Positions of the Calm Belts.

Sir,—Will any of your numerous readers kindly tell me the exact positions of the Calm Belts, at the different seasons of the year, how long they remain stationary, and when they begin to move north and south to their extreme declination. For some meteorological observations I am making, I find it necessary to know this with a greater

degree of accuracy than is given in any work on the subject. Maury gives the nearest approximation to what I want, but even he states their positions rather vaguely.

If some of your readers will give me this information, they will greatly oblige

A PUZZLED METEOROLOGIST.

August 25th.

*To the Editor of the Nautical Magazine.*

[As our correspondent is engaged in meteorological observations he ought to have at his elbow Lieut. R. H. Armit's new work, noticed in our August number. It is published by Potter, of 31, Poultry, and will afford our correspondent some information on the *Calm Belts*, but which although speaking generally, pretty well defined, we apprehend he will find some disappointment if he attempts to pursue them too closely.—ED.]

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## THE RIVER NILE.

*From "Reminiscenses of the Mediterranean," and other Poems,*

BY MRS. ALFRED MILES.

THE Nile, the Nile, matchless, mysterious River,
Thy name awakes the deepest thoughts in man,
From immemorial times, thou dost deliver
Lessons of holy lore for all to scan.
Thou wondrous Nile!

Breathe but thy name, the spirit to far regions,
Hastens on wings for widest travel wrought,
Gleaming with myths and manifold religions,
All creeds which from all times their hues have caught.
Mystery veil'd Nile!

How many ages were thy sources hidden!
Those infant springs that nursed thy mighty stream;
To gaze upon them was a joy forbidden,
Too sacred even for science' bright eye beam,
To rest on, Holy Nile!

By thee how many ages, Hebrew mothers
Wept o'er their children's sufferings and wrongs,
Even to this hour the heart its grief scarce smothers,
At each dread scene that to thy name belongs.
Woe-darkened Nile!

But now thy waters by the desert bounded,
Traced from their home in Abyssinia's heights
(Our modern science walks with hopes surrounded),
Shall bring to Afric's regions holier lights.
Heaven-nurtured Nile!

Thou seem'st to teem with undiminished blessing,
Beyond thy past grand history's annual course,
World-wide thy fame the future's hope possessing,
Still in thy ample bosom lives such force,
Exhaustless Nile!

Shall not the hand of science guide thy waters
Through wider regions rear thy ancient ways,
Handmaid of heaven! beneficent she scatters
Her seeds of light directed by its rays.
Expectant Nile!

And now when travel hies the undaunted spirit,
From England's polish'd ease and home-born joys,
Inspiring it with ardour to inherit
A name for great achievements, she employs*
That soul by thee, great Nile!

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## MONTHLY NOTICES.

A LOSS like that of H.M. late ship the *Captain*, so sudden, so terrible, and so extensive in the sacrifice of our noble seamen, that has recently taken place, has called forth the sympathies of the whole country, and Her Majesty the Queen of these realms has also expressed the deepest sorrow for the sufferers in the following letter:—

ADMIRALTY, SATURDAY.

The following gracious message from her Majesty has been received by Admiral Sir Sydney Dacres:—

"The Queen has already expressed to several of the widows and near relatives of the unfortunate sufferers in the late shipwreck her Majesty's deep sympathy with them in their affliction, but there are many others equally deprived of husbands or relatives whom the Queen is unable to reach except through an official channel.

"Her Majesty therefore desires that measures may be taken to signify to the widows and relatives of the whole of the crew of all ranks who perished in the *Captain* the expression of her Majesty's

* See Sir Samuel Baker's views on the Wasted Waters of the Nile, in his most interesting travels in Africa.

deep sympathy with them, and to assure them that the Queen feels most acutely the misfortune which has at once deprived her Majesty of one of the finest ships of war and of so many gallant seamen, and which has inflicted upon their widows and other relatives losses which must ever be deplored."

Our own undivided attention has been occupied by that unhappy and appalling event which is recorded in the early part of this number. And yet very much attending it is not related, so that the subject must be kept before our readers, as fresh important little facts keep coming to light. However as the Court of Enquiry takes place this week, we reserve further remarks until that is completed. The following paragraph announces this event, the result of which we look forward to with deep interest. More especially as facts will be placed on record which can only be done by such a process, and it is quite possible that the subject of turret ships (as sea-going vessels) may be fully and specially considered. Thus it is stated that:

The inquiry into the loss of the *Captain* commences at Portsmouth on September 27th. The gunner and crew, will, it is said, be formally acquitted of misconduct; and the Court, over which Admiral Sir James Hope will preside, will proceed to inquire into the circumstances attending the loss of the ship. Scientific witnesses of the highest repute will, it is expected, be called, and the inquiry will be very protracted. The subscription list at the Royal Naval College shows that the sum received or promised on behalf of the families of the men lost in the *Captain* amounts to £8000. The officers and crew of the United States frigate *Franklin* have subscribed £133. The following was made public on Saturday evening by the Lords of the Admiralty:—Copy of a letter from the captain of H.M.S. *Monarch*, dated 23rd September, 1870, to Vice-Admiral Sir Hastings Yelverton, K.C.B., commanding the Channel Squadron:—

"Sir,—I have the honour to inform you, that in obedience to orders from Sir A. Milne, I remained at the anchorage of Corcubion Bay for a week, and during that time diligently searched by land and sea every practicable spot, for over fifty miles where it was possible for any of the crew of the *Captain* to have effected a landing, or where their remains might have been washed on shore. The nature of the coast was such as to render it very difficult of search either by sea or land; high projecting cliffs extend almost from Muros to Cape Torriano; the surf continually breaks there even in the finest weather, and as these cliffs are full of deep crevices, it is almost impossible to search them properly without great danger to those employed. But little of the wreck has come on shore; a couple of studding-sail booms, two studding-sail yards, a flying boom, and a Royal yard, all more or less injured by contact with the rocks; some of the spars were so damaged that I did not think it worth the expense to bring them by land, and the ensign staff was in such a place that it could not be brought away. A spare masthead pendant, a piece of the standard compass, a broken endboard, and a few pieces of plank complete the list. I have made every arrangement for the interment of any bodies

that may be washed on shore, and intimation will be at once given to the Vice-Consul. Every sort of facility has been extended to me by the authorities, who have had the coast examined by their own people: the Vice-Consul at Corcubion, Mr. Del Rio has been very kind and zealous.—I have, etc., J. E. COMMERELL, Captain."

With the view of contributing our own assistance towards the object expressed in the following letter, we insert it here although not addressed to this journal.

SIR,—May I ask for your kind assistance in appealing to the public for contributions to the Fund, established at Portsmouth for the Relief of the Widows and Families of the Officers and Crew who perished in her Majesty's late ship *Captain* on the morning of the 7th of September, 1870. At a time when all classes in Great Britain are generously and rightly contributing to alleviate the sufferers of the wounded of other nations, I feel sure we shall not appeal in vain on behalf of our own countrymen who have perished nobly in the execution of their duty. I am glad to see that the improved administration of the Funds of Greenwich Hospital admits of the Admiralty granting a small pittance to the many widows left by the crew of the *Captain*, but without some further aid there is no resource for hundreds of women and children except the workhouse when that pittance is expended. Subscriptions to the "*Captain* Relief Fund" may be paid in London to Messrs. Glyn and Co., 67, Lombard Street; Messrs. Coutts and Co., Strand; and the National Provincial Bank of England; or Messrs. Hallet and Co., 7, St. Martin's Place, Trafalgar Square.

I am, etc.,

SHERARD OSBORN, Captain Royal Navy.

119, Gloucester Terrace, Hyde Park, Sept. 16th.

We have yet to record another wreck arising from collision, which appears in the following paragraph—

News has been received from Gibraltar, dated September 6th, of the loss on the previous night of her Majesty's gunboat *Trinculo*. It appears that whilst cruising off Estepona, she was run into by the Spanish merchant steamer *Moratin*. The vessels had sighted each other for some time, and had taken the usual precautions, when suddenly the *Moratin* put her helm starboard, and ran into the *Trinculo* ahead of her foremast, cutting her clean in two. The crew had barely time to escape in the boats, four minutes only elapsing from the moment of collision to the sinking of the *Trinculo*. Some of the crew, who were forward, saved themselves by climbing over into the *Moratin*. Two of the crew of the *Trinculo* are missing; one man is supposed to have been crushed before he had time to leave his hammock, and the other man was drowned. The *Moratin* was on her passage from Malaga to Cadiz. The officers and crew of the lost vessel were brought in here this morning by the *Moratin*. The *Trinculo* had been but a few months on this station. The officers of the ship were—the Hon. F. S. Crofton, commander, Navigating Sub-Lieutenant G. S. Keigwin, and Assistant-Surgeon W. Yarde, M.D.

THE RAISING OF THE BLOCKADE.—The removal of the Blockade of the Baltic Ports and those of the North Sea, resulting from the present distressing war, has been officially announced, for at length we have the official announcement from the French Ministry for Foreign Affairs that the blockade of the North Sea Ports is raised. This is the confirmation of the rumour which prevailed here last week, but of which up to the time of our going to press we had no official intelligence. As the blockade of the North Sea Ports has been raised, we may conclude that all idea of establishing a blockade of the North German Ports in the Baltic has been abandoned. Our merchants and shipowners will, therefore, probably take advantage of the short interval which still remains before the season closes to complete their engagements with the Baltic Ports, which have been very needlessly, and, we will add, very improperly interrupted by the notification of a blockade which was never established according to the requirements of international law. The raising of the blockade of the Elbe and the Eider is of special importance just now, and the news that Hamburg and Tonning are once more open will be received with a satisfaction commensurate with the importance of the intelligence. Whether the blockade may be re-established will, of course, depend upon the course of hostilities between France and Prussia. It may be hoped that the negotiations which are now in progress will result in the discovery of some basis on which terms may be made with Prussia, which France can accept without dishonour. In any case, however, we do not believe that a fleet of French ironclads will make their appearance again this year, either in the North Sea or the Baltic. So far as those waters are concerned, we may safely regard them as now open to commerce.

Although the following may be considered "Good News" of our whalers, yet the remark of our correspondent who gives us "a bit of his mind" in our number for August last (page 393) holds good. We have not a whaler in the Pacific where our friends the Americans are making fortunes.

GOOD NEWS FROM THE WHALE FISHERY.—Intelligence was on Wednesday received in Dundee, which inspires hope for the success of this year's whale fishing. Captain Souttar, of the *Intrepid*, writing from Whale Fish Island, on the 13th of May, states that he reached the ice after a very long passage, the weather being stormy. At the date of this letter he had caught one fish of fourteen tuns, but had the misfortune to lose two. He also lost one boat's lines. Captain Souttar reports that north-east winds were prevailing—one of the most favourable auguries for the success of the fishing. The *Intrepid* was not despatched to the seal-fishing this year, but was sent to the early whaling, and had captured her fish before some of the other vessels had actually left Dundee. Two letters have been received from the *Erik*. One of them, dated Leively, June 11th, says:—"We have caught four large whales at the south-west, four large bottle-nosed whales, and twenty-seven sea-horses—yielding in all sixty tuns of oil. This is not bad to begin with. The other ships, with the exception of

the *Intrepid*, are clean. The *Intrepid* has one fish. The crews are all well." The fishing could scarcely be said to have begun when these letters were written; and, although two only of these vessels have enjoyed comparative success, the failure of the others should not for one moment be inferred.—*Dundee Advertiser.*

We quote the following useful piece of information from the *Hants. Telegraph*:—

The Indian Relief Troop Service.—The relief troop season for 1870-71, as far as her Majesty's iron screw Indian troop ships are concerned, commences September 26th, when the *Crocodile*, Captain George H. Parkin, will leave Portsmouth for Alexandria with the following officers for Bombay:—Captain Walker and Lieutenants Crowley, Bagot, Smart, Little, Whiteford, and Lawson, of the Royal Engineers; Quartermaster Woods, of the 18th Hussars; Quartermaster Elson, of the 109th Regiment; and Ensign Burns, of the 49th Regiment. She will call at Queenstown, and there embark the 89th Regiment for conveyance to Alexandria, *en route* for Bombay. The following is a programme of the movements of the ships running between Portsmouth and Alexandria:—

| Ship. | Leaves. | | Arrives at Alexandria. | Leaves Alexandria. | Arrives at Malta. | Leaves Malta. | Arrives at Portsmouth. |
|---|---|---|---|---|---|---|---|
| | Ports-mouth. | Queens-town. | | | | | |
| | 1870. | 1870. | 1870. | 1870. | 1870. | 1870. | 1870. |
| Crocodile ... | 26 Sept. | 30 Sept. | 15 Oct. | 20 Oct. | 24 Oct. | 26 Oct. | 5 Nov. |
| Serapis ..... | 3 Oct. | 7 Oct. | 22 Oct. | 27 Oct. | 31 Oct. | 2 Nov. | 12 Nov. |
| Crocodile ... | 15 Nov. | — | 30 Nov. | 5 Dec. | 9 Dec. | 11 Dec. | 21 Dec. |
| Serapis ..... | 22 Nov. | — | 7 Dec. | 12 Dec. | 16 Dec. | 18 Dec. | 28 Dec. |
| | 1871. | 1871. | 1871. | 1871. | 1871. | 1871. | 1871. |
| Crocodile ... | 1 Jan. | — | 16 Jan. | 21 Jan. | 25 Jan. | 27 Jan. | 6 Feb. |
| Serapis ..... | 6 Jan. | 10 Jan. | 25 Jan. | 30 Jan. | 3 Feb. | 5 Feb. | 15 Feb. |
| Crocodile ... | 16 Feb. | 20 Feb. | 7 Mar. | 12 Mar. | 16 Mar. | 18 Mar. | 28 Mar. |
| Serapis ..... | 24 Feb. | 28 Feb. | 15 Mar. | 19 Mar. | 23 Mar. | 25 Mar. | 4 April. |

The *Malabar* will return from Bombay, *viâ* the Suez Canal, at the end of the present troop season, arriving at Portsmouth on the 4th of April. The ships on the other side will run in accordance with the above dates.

Board of Trade, Sept. 24th.—The Board of Trade have received through her Majesty's Consul at Bordeaux a copy of an order, published by the chief naval authority at that port, to the effect that all vessels ascending the River Garonne must heave to, or stop, in passing an ironclad floating battery called the *Embuscade*, stationed off Lagrange, about ten miles below Bordeaux.—*Gazette.*

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## To Correspondents.

The Rev. N. Miller.—We have received your letter. The Book Post is not so active. Just received—shall be noticed in our next.

THE

# NAUTICAL MAGAZINE

AND

# NAVAL CHRONICLE.

NOVEMBER, 1870.

## The Gironde Estuary.*

The town of Royan, at the entrance of the Gironde, does not respond fully to the idea which one attaches to the guardian of so noble a river. More fortunate than many fine cities it has had the particular good luck of finding at once a poet and an historian in one of its people. And yet Royan has taken but a small part in her own advancement, and but for the visitors which resort to her attractions in the fine season, it is to be feared that she would fall into utter neglect. Like the hibernating animals she has her periodical sleep, and every year when the factitious life imparted by the presence of bathers is gradually subsiding, Royan abandoned passes from a lively, cheerful place to a modest little provincial town.

Royan makes noble efforts, it is true, to assume the appearance of a veritable city; renews her barracks and decorating her hotels, planting trees in her boulevards, brushing up her quays and facades: but she has no other permanent source of industry than that of boat building, and her commerce is all but insignificant. The whole amount of its effective service afloat, consists of some pilot boats which go out on the flood tide or perhaps lie idle in a large fetid basin.

Although Royan has never been a considerable town, yet its remarkably advantageous position in time of war has contributed much to its importance. The several conquerors who have succeeded each other in the S.W. of France, consider it of all things most essential to have possession of the promontory which separates the Gironde from the sea, and the first harbour which presents itself in the chain of reefs therein. Thus Royan has enjoyed this advantage through many

* No. 80 in our Lighthouse Notices, October, page 550, gives the positions of the various buoys in the new arrangement.—Ed.

centuries, and in all probability, the site which it occupies in the present day is that on which stood the Novioregum alluded to in the itineray of Autonis,—long unknown in spite of its misfortunes and change of masters. Royan was mentioned for the first time when La Rochelle, its powerful neighbour, presumed to take the lead of France. A garrison of Huguenots intrenched in the Castle of Royan, awaited the landing of Louis the Thirteenth, and his army. The king was a good man. When the town was obliged to surrender after eight days' siege, he might have put the whole garrison to death; but he contented himself by impoverishing the inhabitants, by destroying the piers of the harbour, so that it was no longer serviceable. In consequence of this, Royan was gradually deserted, and soon became nothing more than a mere collection of huts. Towards the middle of last century, if we may put faith in a print of that period, Royan presented nothing more than the picture of a fine set of ruins. The enormous quadrangle mass of walls presented by the castle at the extremity of the point was rent in all directions, its black walls encumbered the ground; the ramparts, like broken rugged rocks washed by the waves, would scarcely be distinguished from the rocks which formed their base: over the notched parapet small outworks could be seen, dotted uselessly round the keep, not presuming to admit from them our view of the sea. The port, also much more limited than it is now, was protected from the violence of the waves by a range of piles, and formed an asylum for some miserable looking mud barges!

At the end of last century, and the commencement of the present, when the coast of France was blockaded by English cruisers, the war which ruined so many towns, became an indirect cause of prosperity to Royan. Coasting vessels which, from the ports of the Loire, at Rochelle, or the neighbouring islands, had cargoes for Bordeaux, never risked themselves at sea; but shipped between the isle of Oleron and the coast of Marennes, and landed their cargoes at Mornac, La Tremblade, or any other port of the Sendre. From thence all the merchandize was transferred to Royan, where they were again embarked for Bordeaux. The capture of the port of Royan in 1814, then the re-establishment of peace, closed a term of important traffic which it was in meditation to revive by cutting a canal between the Sendre and the Gironde. Royan then ceased to be a storehouse in the great chain of commercial intercourse between Nantes, Rochelle, and Bordeaux; and coasting vessels ventured to sea without the fear o being cut off by cruisers outside of the isles of Ré and Oleron. f

Nevertheless, there were some important reasons for the practical revival of the trade which was directed to Royan. The ports of Oleron, the Charente, and the river Sendre have a total tonnage of 350,000 annually, including therein a large proportion of merchandize destined for Bordeaux, and the banks of the Gironde. If the means of communication between Royan and the Sendre were improved either by a railway or a canal, numerous merchants would be induced to adopt this route as shorter and safer, and their ships would avoid

the dangerous passes of the narrows of Antiosche or Maumusson. Already it is only by the port of Royan that the fishermen of the Sendre send the oysters of Tremblade, and the sardines of Saujon to Bordeaux, the last being better known by their improper name of Royans.

Excluded by that ambition, alas, so common in France, which consists in petitioning the assistance of Government rather than in appealing to local or provincial interests, the little town of Royan does not seem likely to recover its place in future as a port of transit. Like many other places in the Basse-Gironde, Royan desires nothing more than to become the outpost of Bordeaux, the St. Nazaire of the Aquitaine river. Certainly the new port does not want depth of water. Close to the point on which the fort of Royan stands, there are from ten to fifteen fathoms of water, and at a short distance from the opposite bank, not less than two fathoms will be found anywhere at low water of spring tides. It would be sufficient to construct a long jetty of about 800 yards, which the engineers of these days delight in, to afford for shipping a roadstead of more than 200 hectares of surface of deep water, without reckoning the shoaler water of the sloping sides. The expense of it would no doubt be considerable; but it is not in a financial point of view that we should look for an obstacle to the improvement of any place.

Celebrated authors have remarked the strong contrasts afforded by nature on this part of the coast of France. On one hand is seen the restless surface of the ocean, as it enters between the tower of the Cordouan and the rocky point of the shore. On the other, the tranquil surface of the Gironde is seen stretching away to the distant horizon. The shores and the tide appear to unfold themselves in distance, the waves of the latter breaking over the alternate sands and reefs of rock, fall harmlessly in the resounding caverns. The appearance in colour of the water is perpetually changing like several rivers running in the same bed. The sand banks which whiten the green transparent waves; the currents from the sea which meet and mingle their waters with the ebb tide, bringing a turbid stream; the spurts of wind that ruffle here and there the surface of the estuary; the long masses of foam with which they break, and the eddies and under currents which divide the surface, here producing overfalls, and again, not far from them, a surface as smooth as oil; all these changing with the manifold conditions of the atmosphere and the sea are the sources of the many interesting phenomena presented by the mouth of the Gironde. The uncertain state of the sky, totally different in the north to that in the south, contributes still more to the picturesque effect of these phenomena. Under the influence of the different winds at sea, the character of the clouds is perpetually undergoing change, and in the space of a few hours one may almost imagine himself transported from the dismal, misty shore of Brittany, to the glowing and resplendent coasts of the Mediterranean.

In a hydrological point of view, the lower part of the Gironde is rather an arm of the sea than the mouth of a river. It is important

that a series of observations should be instituted on the waters of the estuary, in order to ascertain the proportions of salt they contain at all the times of tide, and at the different seasons of the year. The same kind of observations made by the Americans on the waters of the Mississipi should be made at the Gironde. It would be desirable to know, in fact, the effect of the mixture of the tidal waters with the turbid stream of the river, and the amount of silt the waters of the Gironde and Dordogne deposit in their common bed. Whatever it may be it is certain that the waters of the estuary are very salt even to a great distance above Royan. At four and a half miles to the east of this place in its muddy bed off Mechers, formerly covered by the sea, there are salt works which produce annually forty tons of excellent salt. On the sands at the same place in 1860, there were established beds in which millions of oysters were deposited. These works have prospered remarkably well, and they have produced many millions more of their species. From this it would appear that the water at this place has more salt in it than those of the Baltic, or even the Cattegat, as shewn by the recent experiments of M. Baer, on the amount of Saline qualities necessary for the free growth of the oyster.

To the east of Mechers and Talmont, the depth of the estuary decreases considerably. Its bed is by no means so extensive, and is more obstructed with sand banks, not admitting of access to so much tidal water, and that of the river becomes gradually less salt until it is entirely fresh. At the same time the matter held in suspension increases, and imparts to the whole surface of the Gironde the appearance of an immense bed of clay. It is principally in the sinuous and changeable line, made by the flood tide against the river stream, that an idea may be formed of the enormous mass of matter held in suspension by the two rivers, the Garonne and the Dordogne, combined. The different liquid beds flowing with different velocities and charged with impurities of different colours, wind about each other their long lines of clay, resembling solid masses, crossing and overlying each other in a manner so as to form a surface of yellow water, with veins variegated as in the most beautiful marble. From one place to another are seen dark islets covered with leaves and roots, bordered with masses of foam, suddenly appearing and then mingling in the mass of clearer water that surrounds it. It is here that it may be truly said the estuary terminates, and the river begins.

The Garonne is a normal river, that is, that in the greater part of its course it encroaches on the right bank and abandons the left. The Gironde is just as regular in its rate. On the western bank, all the chains of hills terminate in abrupt steeps, which the stream forces to recede by incessantly wearing away their base. While the flood attacks the foot of the promontories, the rains bring down the earthy deposits, penetrates the interstices of the calcareous rocks, and produce by a gradual process, a slow disentegration by those sudden fallings in, which the violent washing of the waves effect during a storm.

If we may believe the legend, it was thus, that the ancient village of Geriost was destroyed, which stood (it is said) on point Suzac,

immediately to the east of the couch of St. George: it was thus, again, that the picturesque village of Talmont, situated at the extremity of a rocky peninsula, tumbled piece by piece into the Gironde, before any works for its protection could be commenced. At the foot of each of the precipices, that direct the course of the river, one may see during the hours of ebb a rocky flat, projecting into the river: this bank, covered with weed, is the ancient base of the cliff, which the tides have undermined to the mean level of low water: its contour is the same as that of the banks, which have long disappeared, and enables the observer to perceive at once the extent of the parts encroached on by the estuary.

Of all the promontories of the lower Gironde, the most remarkable is that of Mechers, immediately opposite to Verdon. No less beautiful, but easier to visit by far than those vertical walls on the banks of the Mississipi and the Missouri, to which the depth adds greatly to their interest, the cliffs of Mechers are composed of layers unequally friable, but of a nearly uniform thickness. The effect of storms has been to wear out the strata of the rocks at different distances, in ranges of arcades; causing them to appear like the columns of Cyclopean palaces. A little above the level of the river, the waves of the Gironde, assisted no doubt by the original stream of the river from its upper waters, have excavated deep caverns, veritable gates which contribute to the architectural appearance of the whole. One of these openings abounds in cascades from the middle of the rocks.

To the encroachment on the eastern bank, corresponds the deposit on all the low parts on the opposite bank. Extensive marshes which once formed the bed of the river, and which the water has gradually abandoned, penetrate far into the interior of the peninsula of Bas-Medoc. Such are the *polders* of Little Flanders, gained from the sea by the Dutch in the first half of the seventeenth century. Such also are the swampy grounds of St. Vivien and the salt marshes of Verdon, again worked at a recent period. All these ancient parts, intersected by dykes and channels, are so low that from a distance they may be mistaken for the surface of water.

But the principal point of interest is a spot, which was an island in the Gironde scarcely two centuries ago, and had the moderate height of about thirty-six feet above the level of the sea, and if we may believe the general opinion, which seems plausible enough, the inhabitants of Medoc have proudly consecrated this island to Jupiter, and it still bears the name of *Jau*, as given to the ancient isle, and the village which stood on it. Further to the west on the Atlantic side, stands a ridge of small wooded downs, the summits of which are not even high enough to hide from view the ships that are in the Passe-de-Grave. During the night where, from the summit of the rocks of St. George, looking over the Bas-Medoc above the chain of downs, may be seen the light of a vessel gliding along the horizon like a moving star.

The veritable *Grave* peninsula is opposite to the salt marsh, an extensive triangular mass of downs of considerable surface, and connected with the *landes* of Gascony by a narrow isthmus. Limited on

one side by the sea, and on others by the Gironde and the marshes, it forms in miniature the best representation of the peninsula of Holland, surrounded by the North Sea, the Zuyder Zee, and the polders of Haarlem. Seen from the sea, the downs of *Grave* grouped in a picturesque manner round a large conical mount of above a hundred feet in height, it presents the appearance of a bold promontory, and one might easily conclude, that they were the outposts of a mountainous country. A beautiful wood of pines, intersected in various directions as a protection against fire, and by railways, covers the ground, and by its dark green tints contributes to give the whole a sombre and solemn appearance.

No land which borders the estuary of the Gironde has suffered more vicissitudes according to history than the *Grave* peninsula. Recent geological discoveries, in fact, shew that it has been completely altered in position. It once occupied the part which now forms the Passe-de-Grave, while the river was there covered with the wooded downs of Verdon. On the sand, which extends from the baths of Vieux Solac to point de-la-Grave, the sea often throws up beds of clay exactly similar to those which are deposited by the Gironde; even some roots of the vine have been discovered in soil in which they once grew. In fact, the engineer, M. Kobaglia, of Point-de-Grave, has discovered in the clay, concealed below the sand of the shore, some ditches, some trunks of willow trees, and then a hole, which seemed to have been an opening, round which were numerous impressions of human feet, as well as those of cattle. How is the presence of these beds of clay to be explained, these roots of the vine, these trunks of willows, and this hole, unless we accept the hypothesis according to which the present shore of the sea is no other than the former bank of the Gironde? Thus, during the lapse of ages, the whole face of nature, the sea, the sand, the downs, the marsh, and the river, have been gradually altered in position. The ocean never ceases gaining to the eastward, pushing the downs before it, which encroach in their turn on the left bank of the river; while this leaves the sand hills on its opposite bank. In comparing the present form of the peninsula with what it formerly was, it may be seen that it has turned on its base as on a hinge to incline constantly to the right, and with its point to describe a large arc of a circle of the Gironde estuary.

Then the peninsula changes its place like a ship riding at her anchor, tending to the waves, the villages and all the constructions on it, originally devoted to destruction, Thus, indeed, perished the city of Noviomagus, the grand emporium quoted by Ptolemy, and which he says was destroyed by a terrible storm towards the end of the sixth century. In 1625, the father Monnet considered that he had discovered vestiges of the ancient city under the water which washes the rocks of Cordouan, and there are imaginative sailors in these days who strain their eyes over their vessels to discover the remains of towns, and submerged houses. M. Raulin, author of Girondine geography, seems disposed to consider the site of Noviomagus in the environs of Lesparre, where an arm of the Gironde, if not the whole of this river,

certainly once was at an unknown date. Other authors believe that Noviomagus was no other than Vieux Solac itself, where a multitude of Roman remains have been found.

It was in the middle of the downs of the *Grave* peninsula, that in the middle ages the village of Monts was found, the priories of Extremayne and St. Foy, the chateau of the Montaigne family, and many hamlets actually buried by the tide on the sands. To the south of the narrow isthmus that connects with the continent the masses of the downs of Grave, large and terrible changes have been going on. At the period of the English command, the town of Soulac spread its numerous dwellings to the eastern base of the downs, and on the left bank of the Gironde, which at present runs more than two miles to the eastward. An old parchment drawing contains the names of twenty streets of ancient Solac, nearly all after the towns or countries with which the commercial city had dealings. Thanks to its fortunate position and its foreign masters, it had become the powerful guardian of the mouth of the Gironde, and the entrepôt of commerce between Bordeaux and England. Fleets of ships lay at anchor in its roadstead, and it was here that in the middle of the thirteenth century, Henry the Third and his suite embarked for Portsmouth. But while Soulac was enjoying its communications with the world, the river was gradually retreating towards the east. At the same time the terrible chain of downs which had not been fixed, or which had been deprived of their woods, advanced gradually before the winds from seaward. Soon it attained the outskirts of the town, and began to sand up the houses, when a violent storm drove it as it were to the assault, and the inhabitants of the Girondine Pompeii had scarcely time to escape with their effects. The new Soulac founded by the fugitives at nearly a mile to the S.E. of the lost city has never attained the prosperity of the former, and at present is nothing more than a diminutive and unimportant village.

Nevertheless, the Vieux Solac has not completely disappeared and yet offers us, in proof of its former splendour, a beautiful church, consecrated to Notre-Dame-de-la-fin-des-Terres. This edifice which stands about 800 yards to the west of the town, with the view of being useful as a sea mark to navigators in the gulf, was only partially buried in the sands; and still shewed in the course of the last century. Its tottering tower does not cease to be looked for by shipping, and at present a high beacon placed in the position of the ancient steeple, is the first mark which the seaman recognises, when taking the channel between the coast of the peninsula and Cordouan. For a long time the downs freely gathered their sand by the side of the church, without encroaching on its thick walls, and when at length, the progress of the sand was arrested by planting firs, the old construction of the middle ages remaining in the inclined sides of the downs, always shewed the direction of the nave and its side isle partly sunk lower down. These remarkable remains attracted the attention of archæologists for many years; and it was only in the course of 1859, that the first opening was made in the foot of one of the downs. Thanks

to Mr. A. Keredan, the works are now completely finished, and the church of Vieux-Solac is entirely recovered, more beautiful than ever; for nature herself has ornamented the ruin, and contributed to its original beauty.

This remarkable remnant of the middle ages stands close by the side of the road, which leads to a village of baths recently constructed on the sands of the bay of Cordouan. Some hundred yards from the village, to which in a large measure it owes its reputation, the church in the fine season is the principal object of visitors. It is completely surrounded by pines at the bottom of the vale in which it stands, and these by their sombre foliage contrast well with the white walls, which have been covered with a bed of sand. A sinuous line marks the roof, composed of wild plants; and the reddish character of the sand, shewing precisely the height to which the downs had risen round the building. The crevices of the cornices are filled with flowers, and brambles appear hanging in garlands. A pine has had the audacity even to take possession of the monument in the name of nature, by victoriously inserting its roots on the roof of the nave. The interior of the church presents a view equally picturesque. The soil of the naves and choirs is a surface of white sand, which the wind arranges in slight eminences; here and there grow bunches of turf. Some plants venture to grow in the slits of the walls. The beams of the sun fall like arrows across the broken vaults, and by their regular lines vary the effect of the heavy Roman pillars. Fantastic figures intermingled with foliage again look over the chapels of the great nave, while in the choir the remains of a superior and very delicate sculpture are scattered about in the midst of nettles. Three ogives which lighted the abside, one is standing, and appears like a kind of triumphal arch, admitting a flood of light into the whole edifice, and adding to the view the undulating tops of the pines in the forest. Such is the curious ruin removed from the sandy warfare which it has undergone.

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## OUR SEAMARKS, No. 4.—*Fog Signals.*

WE have been in some doubt as to the propriety of bringing Fog Signals under the head of Seamarks, but on considering this term in its widest sense,—as including all "marks and signs" established with the object of assisting navigation, and that a fog-signal performs the duty of a lighthouse when fog obscures and renders the light unavailable, we have no longer hesitated to class it with the rest of our Seamarks.

Among the almost numberless dangers to which the mariner is still exposed, notwithstanding the progress of the art and practice of navigation in these later years, we know of none more perplexing or fraught with danger of every kind than fog. More particularly is it

so to the coasting navigator. In open sea the mariner has certainly to trust implicitly to his compass to guide him on his course, and in most cases his trust is not misplaced. And even supposing he were led a little astray by relying on his compass, a point or two would make but little difference in the wide expanse of sea, for as soon as the fog cleared an astronomical observation would soon enable him to put the vessel on her right course. But near land, where there is very limited sea-room, to diverge ever so slightly from the proper track might lead her on a sandbank, or against a projecting point of land, as was the case with the *Spindrift* some months back. Some power of signalling in fog is absolutely necessary for the safety of navigation. Buoys and beacons are of no use for they cannot be seen at all, and lights are only visible at very short distances. The only remaining resource is sound.

Fog being a much more substantial atmosphere than clear air, the passage of light or sound through it must necessarily in some degree be intercepted. Both light and sound are more or less absorbed by the constituent elements of the fog, and consequently the power of each is diminished according to the distance it has to travel through the thick atmosphere until it is altogether absorbed.

Experiments with various kinds of light have been tried in fog, but none as yet have proved of much avail. The only light which has shewn any superiority over others for penetrating power is the electric light, and that is said to illuminate the vapour, even though the light itself be not seen, and to transmit an illuminated beam through fog further than any other. The author of this paper was recently struck with the power of the magnesium light, at a display of fireworks at the Crystal Palace. It so happened that a thick fog-cloud rested about two hundred feet above the ground, and to the disappointment of numerous spectators, all the rockets and shells rushed up into the cloud and there burst, none of their glories of beautiful and brilliant colours being visible below. The magnesium balloons likewise ascended into the fog, but with a somewhat different result, for their startling vivid light was seen far up in the cloud, but growing fainter as they travelled on until out of sight, while the whole cloud seemed saturated with light. But notwithstanding these brilliant luminaries, experience has shewn that for all practical purposes light cannot at present be made useful as a fog signal.

Sound, however, is not affected by fog in the same degree as light. We have said that both light and sound were more or less absorbed, and we may now add that of the two sound is decidedly the "less absorbed." The effect of fog on sound is to deaden it, and prevent its travelling as far as it might do if unimpeded in its course. But it certainly is not so readily stopped and rendered useless as light is, and consequently it has been found that in time of fog the only sense to which appeal may be made to convey to the seaman a warning or a guiding signal, is his power of hearing.

Gongs, bells, whistles, trumpets, and guns, are the noisy instruments which are most generally used as fog signals. Gongs are used almost

exclusively by light vessels. Each vessel is furnished with one of these instruments fixed in the fore part of the ship, and during foggy weather is sounded continuously. Being a signal peculiar to light-vessels, passing ships, judging the direction from whence the sound proceeds, can with the aid of compass and chart determine their position and course with tolerable accuracy. Bells have been used from time immemorial as danger signals for the warning of mariners. Placed on the tops of buoys, as described in the article on "Our Seamarks," in the last number: they are rung as the buoy rocks or moves with the motion of the waves. Some of these bell buoys are very annoying to the inhabitants of sea-side places not far from them. At the entrance of Harwich harbour the Beach End bell buoy makes at times a very mournful tolling, whether there be fog or not, and it has been the source of much discomfort to invalids who have sought the quiet and health-giving influences of sea-side residence. But it must be borne in mind on the other hand that the advantage to mariners is unspeakably great, and that probably many lives are saved by the dreary and monotonous tolling of the bell. Sometimes bells are fixed on to dangerous rocks in such a manner that they are rung by every wave that breaks upon or washes over them. No doubt most of our readers are acquainted with the legend of Sir Ralph the Rover, who removed the bell placed as a danger signal on the Bell or Inchcape Rock, in Scotland, by the Abbot of Aberbrothock, so that vessels might strike on the reef, and he would be near to plunder; and how the pirate himself was afterwards wrecked on the same rock in consequence of the absence of the warning bell. Until lately the bell was the only fog signal employed. There were varieties of bells, some of greater power than others, some differently constructed or composed of different metal, but no attempt seems to have been made in earlier times to introduce any new kind of signal. In these days bells are still very useful. At every light-house station where it is likely to be serviceable a bell of six or eight hundred weight is fixed, to be rung in thick weather, either by clockwork or at intervals by manual exertion on the part of the keeper on duty. Many vessels, especially sailing ships, use bells to announce their whereabouts to other vessels, but steamers naturally make most use of their whistles to make known their presence to ships in their vicinity. The development of steam has brought with it some remarkable improvements in the matter of fog-signals. Our transatlantic cousins with characteristic energy seem to have first applied steam power as a source of sound for signalling in foggy weather. Before we comparatively slow people had sufficiently thought over the matter, they had established several steam whistles in full working order at various places on the American coasts, and wonderful accounts of their powers soon reached England. As time went on, numerous improvements were made, and at last a steam whistle was elaborated which could be heard at a distance of five miles with the wind, and two miles against it. This apparatus had an engine of two horse power all to itself, the steam of which blew the whistle, and it can easily be imagined what a fearful sound must have

been produced.* We can judge something of its effect by calling to mind the shrieks of our engines at the various railway stations, only the fog whistle would be much more appalling to our ears. We have tried these steam whistles † at one or two places in our country, and found them to answer very fairly and to work satisfactorily; but one ingenious American has since brought to notice another signal which in competitive trials with a large bell and a steam whistle has shewn a very decided superiority. This signal is a horn or trumpet blown by air forced through the trumpet by steam power. A fog-trumpet of this description is now in very successful operation at Dungeness, and another has been recently established at St. Catherine's Point in the Isle of Wight. In each case the signal is close to a light-house and is attended to by the keepers. At a short distance from the light-house stands a small corrugated iron building, in which there is a caloric engine and an air-pump connected with which is the trumpet that is carried through the roof with its mouth directed seaward. The engine works the air-pump, and the condensed air is forced into the trumpet, and the music strikes up. In order that the sound may be transmitted in every direction sea-ward, the mouth of the trumpet is made to traverse an arc of two hundred and ten degrees, and it points in every direction between certain bearings once in each minute. The sound can be heard a great distance off; accounts differ as to how far it may be heard down the wind, some say seven, others ten miles,—against the wind the sound will travel nearly three miles. This artificial manufacture of sound is the most successful yet tried, and probably its use will in time be very much extended. The sound is continuous and is found to be very useful to vessels rounding the Dungeness and St. Catherine's Points in foggy weather.

But notwithstanding these very clever mechanical arrangements, as signals they are not to be depended upon. In places where a definite signal is absolutely necessary in thick weather, the authorities have found that nothing is so reliable as the firing of a gun. An eighteen-pounder fired every half or quarter of an hour, is found to be the most trustworthy and efficient fog-signal; and of course where it is convenient and can be assured to convey a clear and distinctive signal to vessels not far off, it may well be used. But there are objections to guns as fog-signals; they are much used for other purposes, there is no element of distinction in them, therefore they cannot be placed at short distances from each other, for they would very likely lead to mistakes and confusion; and possibly nervous residents in the immediate neighbourhoods might construe them into "war's alarms,"

* See Notice in our Light-house table No. 98, from Nova Scotia, which says, that the steam whistle may be heard in "stormy weather" and "against the wind" from five to eight miles distant; with the wind from "twenty to twenty-five miles," and "in calm or moderate weather fifteen miles."—Ed. *N.M.*

† In our volume for 1869, at pages 500 and 501, we have recorded the establishment of one at Cape Elizabeth and Cape Ann by the Americans.—Ed. *N.M.*

signals of distress, or what not. In unfrequented lonely districts, and at very long intervals on the coast, where they may be made to serve a distinct purpose of warning to ships, they may be successfully employed. A gun on the Holyhead mountain is of great value in foggy weather to the mail steamers from Ireland, and at the dreary locality of Flamborough Head there is another. There is also one on Lundy Island which is very effective in announcing the whereabouts of the rocky shores of that island.

It remains yet for us to notice one or two fog-signals of a rather peculiar nature. On the rough Welsh coast are the homes of innumerable sea-birds, and on the extreme edges of the rocky ledges and cliffs these birds in vast numbers perch themselves and lift up their voices. Their shrill screams and cries are heard for miles out at sea, and even above the noise of winds and waters their clamour is often heard. The strange shrieks of these wild birds are frequently very comforting to the navigator when his vessel is enveloped in mist. Recognising their great utility in this respect the State forbids their wanton destruction; lighthouse keepers in the adjacent localities are instructed to feed and encourage the breeding of these birds, and this most efficient fog-signal of Dame Nature is appreciated and made the most of. Another strange signal is that of the "roaring caverns" as they are called. A cave exists in a rock, and in rough weather the great waves rush in and completely fill it for a short space, driving the air through a small aperture at the back opening landwards. The noise made by the escape of the air is most awful for ears accustomed only to the comparatively dulcet sounds of civilised society. There is a story current among light-keepers that a new keeper on going to his station (the Longships, where there is one of these caverns) was so alarmed in the night by the noise that when he arose in the morning his hair had turned perfectly white on account of fright. There are several of these caverns in Scotland and their noise-making qualities are carefully attended to and much valued.

Notwithstanding, however, the merits of all these various fog-signals, there are still many causes operating to lessen their utility to the sailor. The noise of the furious waves, the roar of a blustering wind will too often drown other sounds, and the strong currents of the wind will too frequently divert altogether sound-signals projected from land. Again, the noise of a steamer's engines or paddle wheels, and her rush through the water militate against other sounds reaching the ears of those on board. And although we thankfully acknowledge the efforts that have developed fog-signalling to its present condition, yet we are forced to admit, as we said at the commencement of this paper, that the danger to navigation most unprovided against by artificial means, and which seems to us more bewildering to mariners than any other, is Fog.

We have now completed the series of papers entitled, "Our Seamarks." We know that we have not gone so deeply into the interesting subject as its inherent importance deserves; but we confidently hope before long again to approach the subject, and to place

before our readers some more definite and practical information concerning "Our Seamarks," than has been attempted in these general remarks.

[In reference to this subject, it is said that wonderful effects of sound have been obtained by manufacturing bells of aluminum, in France and Belgium. A bell of eighteen inches in diameter scarcely weighs forty pounds.—ED. *N.M.*]

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## A TRIP TO THE MINING REGIONS OF THE NORTH-WEST.

Thursday, July 16th, 1868.

*Thunder Bay Mining Company.*—On awaking at an early hour this morning, we found the steamer moored alongside a new wharf in Thunder Bay, recently constructed by the silver mining company bearing that name. In entering the bay, we rounded Thunder Cape, a rocky promontory 1359 feet in height, visible a great distance from the lake. This bay is another of those spacious land-locked harbours, so many of which we have noticed along the route, and is capable of accommodating the entire marine of the universe; it is about twenty-eight miles in length, by an average of fourteen in width, and is sheltered from every wind. The huge surges of Lake Superior do not roll into it at all, and it may be regarded as an inland lake. The water deepens uniformly and gradually from the shore, until, at a distance of five hundred feet, it has a depth of three fathoms and a half. The wharf built by the Thunder Bay Mining Company is at present the only one in the harbour; but as timber is plentiful, and there being an abundance of stone on the shore which might be used for filling piers, the cost of building wharves would be comparatively trifling. On the property of the above company we observed a couple of quartz crushers and stamp mills, brought from England, which it is proposed to put in working order in the fall. The mines are situated about two miles and a half from the landing place, and are reached by a good road. The superintendent is a Mr. McDonald, a gentleman every way inclined to furnish information with respect to the mines now being worked. Silver was first discovered in this region in the year 1866, by a Mr. Peter McKellar, shortly after which the lands were eagerly sought after. A company was at once formed, under the name mentioned, and a large tract of land surveyed and patented by those who now form the company. Work was rapidly proceeded with, and one shaft eighteen feet in depth, with a second eight feet, have already been sunk on the property. Although the prospects of a good yield of silver is anticipated at a moderate depth, it is supposed that it will not be found in paying quantities until a depth of a hundred feet is reached. Sixteen miners are at present employed by the company, and the shafts are sunk by contract, the cost being thirty dollars per

foot for sinking, eight by twelve feet square. The company, so far, have expended a sum of 53,000 dollars on their property, in mining operations, building a wharf, constructing a road to the mines, and the purchase of quartz crushing and stamping mills. The ore now obtained is calculated to yield at the rate of from forty to fifty dollars per ton; some obtained from the mine, it was thought, would yield as high as 1,000 dollars per ton, but such samples are very rare as yet. Some very fine specimens of the black sulphurets of silver, with the quartz rock also, have been obtained. The region around Thunder Bay abounds largely in copper, silver, iron, and galena, although silver and lead are the only natural products yet sought for.

*The government policy.*—The policy of the Ontario government, in passing the late mining act, is severely criticised; and such a narrow-minded measure can only have one effect, that of ruining the prospects of those who largely invested in mining operations in this locality, and preventing further sums being spent by capitalists. Last year, a-go-head American, named Withers, residing in Kentucky, hearing of the discoveries in the Thunder Bay region, organised a company to purchase a tract of land in that neighbourhood. He secured a location, and spent about 65,000 dollars in prospecting and sinking two shafts to a depth of sixty-five feet. The oppressive mining bill, however, has thrown a cloud over his prospects, and after this large expenditure of money, afraid to risk any further outlay, he has suspended operations, and closed the mines. The owners say that, although the law is not yet put in force, it is not known how soon it may be, and many who might be otherwise induced to invest their capital are thus prevented from doing so, fearing that at any moment the government may "shut down on them." The act exacts a royalty of two and a half per cent. on all silver ore obtained, besides the imposition of an annual license on every miner at work.

The Withers Company are in possession of about 3,200 acres, which, when patented, and taken up, it was clearly specified therein that all silver, gold, and other metals found on the lands were to be the sole property of the patentee. How absurd, then, it is for the government, at this late day, to clog enterprise, and throw obstacles in the way of those who desire to open up and settle in this wild and distant country—how widely different the liberal policy pursued in this respect by the American government. On the other hand, before the passing of this oppressive act, some private parties had 30,000 acres surveyed; patents were applied for, but for some unexplained reason the grants were refused by the government. Had those patents been issued at the time, we are assured that at least four additional companies would now be in operation. The feeling among the people in this district, and at the Bruce Mines, is strong against the government on the royalty question, and if it is ever attempted to enforce the act as it at present stands, this now progressive region will at once relapse into its former wild obscurity. The mines are at present worked at a loss, and to add still further to that loss by an exaction of the obnoxious clause, will argue but little for a government that should

do all in its power to encourage, and not retard, the progress of a country. On the lands of Black Bay, adjoining, some 10,000 acres have been surveyed, and patented; those lands are rich in silver and lead, and are said to yield from two and a half to three per cent. of silver, the balance being lead, which latter alone is expected to pay for working the mine. Copper has also been discovered here in large quantities. At Thunder Cape, on the Tuesday previous to our arrival, a very rich surface deposit of silver was discovered on the property of the Montreal Mining Company. I saw a specimen of the ore, and can speak personally of its valuable qualities, the pure native silver being extensively observed throughout the entire piece. The discovery on this occasion was made by Mr. McFarlane, recently of Sir William Logan's geological staff, and who is at present in charge of the company's works.

*Colonisation Road to Fort Garry.*—About ten a.m., the *Algoma*, leaving the wharf, came to anchor a few miles further up the bay, about a mile and a half from land, to take in another supply of wood, where nearly the whole of the party left the ship in boats for shore. A small wharf is built here, about sixty feet in length, for the purpose of storing wood, which has to be conveyed to the steamer in scows, a very slow process. The water is not of sufficient depth to permit the vessel to proceed any closer than where she lay. At this point the new Colonisation road commences, *en route* to Fort Garry, on Red River, viâ Dog Lake, the latter place being twenty-five miles from Thunder Bay. Only six miles of this new road has been built, the work on which, for some cause or other, was stopped last season. This scheme of communication with Red River proposed a series of improvements along the route, comprehending dams, locks, and turnpike roads, to complete the communication, an entire distance of four hundred and sixty-three miles, of which three hundred and twenty-two miles are by water, and one hundred and thirty-one by land. The Colonisation road scheme was adopted by the government in June, 1867, when the superintendent was ordered to organise a party to proceed to commence the work.

The season's operations were brought to a close on the 16th September, 1867, and as the work has not been resumed this year, the road, after being opened up for a distance of six miles, remains in its present unfinished state. It is hardly possible, however, after the expense gone to in the improvements, that the scheme will be abandoned. The road, so far as it goes, is well constructed, and any reasonable load, say from one to one and a half tons, can be safely transported over it. At the spot where the road begins, near the water's edge, are several buildings, comprising a large dwelling-house, a store-house, grocery and *tavern*, also a curiosity shop, where our party found means of purchasing some very fine specimens of ores and other valuable stone. Around the store-house, about three acres of land have been cleared and stumped, on which a very fine crop of potatoes was seen growing. This contemplated route to Red River runs altogether through British territory, which it will be seen, is principally

by water, and in spite of frequent transshipments that will thus be required, it is estimated that merchandise can be carried in this direction cheaper by from thirty to fifty dollars per ton than by the present route, through St. Paul, Minnesotta. A walk for some distance along the road from the Thunder Bay terminus, into the interior, gives a partial idea of the quality of the soil. It is very fertile, and already some fine farms are springing up along the route. We saw some excellent samples of spring wheat, peas, potatoes, and corn, nearly as far advanced in growth as the crops around London. All produce grown here finds a ready market among the miners, at high prices, as all the supplies required have to be brought from Collingwood, by steamer. A French Canadian farmer, named Brown, took up his quarters here about nine years ago, and is much pleased with the climate. About twelve miles back from the bay, on the Dog Lake road route, is found a splendid prairie, several miles in extent. It appears to us of the greatest importance that the road to Dog Lake should be completed without delay. In its present unfinished state, it is comparatively useless.

*Fort William.*—Ample time having been permitted the excursionists to view the main points of interest in the neighbourhood just explored, the steamer hove up anchor at three p.m., and off we steamed for Fort William, a distance of five miles, at the head of Thunder Bay. Why this place should be dubbed a fort, we cannot attempt to explain; the only material that inclines to anything in the shape of war, are a couple of juvenile "bull dogs," six-pounders, from the throats of which a salute was fired as we came to anchor, opposite the settlement, neither is there any stronghold appertaining in the slightest to a fort. Fort William is situated about a mile above the mouth of the Kamanistaquoia River, which stream is navigable for fifteen miles from the bay. The scenery along the river is really beautiful, and as varied as it is grand; the banks were clothed with choice flowers, with here and there an Indian wigwam to vary the scene, but the mosquitoes were exceedingly troublesome, and left their villanous imprints on the hides of many of the party. Three miles up the river, the scenery increases in grandeur, and we reach a bold bluff rising 1,200 feet, the whole forming a magnificent back-ground.

The water approach to Fort William is only navigable for small or light draught vessels, owing to the presence of a sand-bar near the mouth of the river, and the steamer had consequently to lay off some two miles and a half from shore. It is stated that this obstruction could be removed at a small cost, not exceeding 3,000 dollars, which would permit steamers to pass to the Fort, and up the river for fifteen miles. This is the old canoe route of the North-West and Hudson Bay Companies to Dog Lake, on which line the supply of water is ample. Dog Lake is a sheet of water on the Kamanistaquoia, twenty-four miles inland from Lake Superior, and extends for a distance of some twenty miles in a direction nearly parallel to the western coast of Thunder Bay. To the westward of this lake, the principal stream which supplies it with water—Dog River—can be made navigable

nearly to the Height of Land, so that, between river and lake, an available reach of some thirty-five miles could be commanded. This as the Thunder Bay terminus to the Fort Garry route is not so favourably recommended as that by the Colonisation road, from the fact that, if expensive works were constructed at the mouth of the river, the bar is such that scarcely any amount of dredging could keep it in a fit state for the passage of heavily laden vessels. Arriving on shore, at Fort William, we proceeded to an examination of the surroundings. It contains, besides the residence of Mr. McIntyre, chief factor of the Hudson Bay Company, some five or six houses, mostly inhabited by Indians, a post-office, trading store, an immense dairy, the property of Mr. McIntyre, near which we counted a herd of thirty cows. At this dairy a vast quantity of butter is manufactured, and supplies of that commodity, with milk, is disposed of to the Indians in the settlement, and to all steamers and sailing vessels that call at the Fort. Mr. McIntyre has resided here for a period of thirteen years; his residence is superbly furnished, and his table provided with all the delicacies of the season, which are even to be found in this distant region.

Dry goods are sold almost as cheap here as they are in London, notwithstanding the monopoly that exists, the only trading store in the place being carried on by the chief factor; the goods are imported direct from Europe. On visiting the garden of Mr. McIntyre, we found every description of vegetable under cultivation: peas just ready for use, and other garden stuff in a forward state. The land on the borders of the bay, at the mouth of the river, is low and swampy, but a short distance inland good arable soil is found, a great portion of which we found under crop, and producing excellent wheat, hay, and oats. Mr. McIntyre's farm-yard is a perfect picture of neatness, and resembles in every respect those we find in many parts of England. After carefully scrutinising everything of interest to be found in this immediate locality, we took boats and proceeded up the river, a distance of two miles and a half, to the Indian or Jesuits' Mission. On the way up we passed an Indian graveyard, in which it was surprising to notice the advanced ages recorded on the headstones of many of those interred there. The average ages of the departed reached from eighty to ninety years, many over a hundred, and one in particular one hundred and twelve. Those facts speak well for the healthy character of the settlement. On reaching the mission, we were introduced to the Rev. Father Duronque, a Frenchman by birth, and a venerable and kindly disposed gentleman, who gave us a cordial invitation to visit his house. The reverend father speaks the Indian language fluently, and appears greatly devoted to his mission. Although he cannot boast of many of the comforts enjoyed by those nearer the centre of civilised society, and his dwelling withal being of rather a primitive character, he is one of the happiest and contented persons in existence. He took pleasure in showing us his garden, in which we found growing all descriptions of vegetables, and some very fine tobacco plants. Immediately adjoining the residences of the priests is a very neat little chapel, capable of seating one hundred and fifty

persons. It is well attended on Sundays by the Indians, who pay great attention to their religious duties. The mission contains nearly four hundred souls, and is presided over by Rev. Fathers Schooney and Duronque, the latter gentleman having resided in the settlement for fifteen years.

The district over which those gentlemen's ministrations extend is about one hundred and sixty miles, and reaches as far down as Michicopoten Island. At the time of our visit, Father Schooney was absent some miles away attending to his missionary duties. The Indians reside, not in wigwams, but in neat and comfortably built frame and log houses. The village, which contains a population of over three hundred, appeared remarkable for the quiet which prevailed over its entire extent. Scarcely an Indian, squaw or papoose, was visible; whether absent, or shut up in their dwellings, could not be ascertained, but nothing was to be seen of them, if we except half-a-dozen Indian girls, observed scampering along the shore on the arrival of the boat. The visit to this mission was one of much interest. It being now six o'clock, the visitors took their departure, anxious to reach the steamer, which, it was announced, would leave on the homeward trip at eight p.m. On passing Fort William, the appearance of the sky denoted the approach of a storm; the sun, which was shining brightly in the heavens a few moments before, became suddenly obscured, and scarcely had the boats reached the steamer before one of the most furious thunder-storms ever witnessed burst over our heads. The vivid and repeated flashes of lightning were grand and terrific in the extreme, while the thunder re-echoed from every crag, and was of a nature to fill the stoutest heart with awe. Thunder-storms are of frequent occurrence in this neighbourhood, and hardly a night passes, we were informed, without such an occurrence. Thunder Bay obtained its name from the frequent recurrence of this extraordinary phenomenon. The anchor was weighed shortly after eight o'clock and an effort made to pass the Cape before night-fall, the navigation around which, after dark, is somewhat dangerous. After rounding the Cape, and before we were fairly on the lake, the good ship was again enveloped in a dense fog.

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## ETHNOGRAPHIC VIEW OF WESTERN AFRICA.

### *Northern and Southern Guinea.*

*(Concluded from page 531.)*

*Inferior tribes scattered among the more important families that have been described.*—In the preceding sketches we have seized upon only the prominent tribes along the western shore of Africa. Interspersed among and around these dominant families, there are a large number of smaller and inferior clans, who, if it were not for the close relation-

ship existing between their dialects and those of the more powerful communities by which they are overwhelmed, might be regarded as the gipsies of Western Africa. Among these may be mentioned the Felusses and Papels in Senegambia; the Bulloms, Bisagos, Deys, and others in Upper Guinea; and the Malimbas, Bakelis, Shebas, and various small tribes about the Kongo, in Southern Guinea. These inferior tribes, wherever found, differ very materially from the more powerful families in physical character, in their social condition, in their intellectual habits, and are really the only inhabitants of the country who combine all the characteristics of the true negro. At the same time, they resemble each other, no matter in what division of the country found, not only in physical appearance, but equally in their moral, social, and intellectual condition. We do not look upon these clans as distinct, separate families, much less as being related to each other like the wide-spread families of the gipsies scattered over Europe, but as degenerate branches of the better and more powerful stocks in the immediate vicinity of which they exist. They are generally to be found in the alluvial districts and along the marshy banks of creeks and rivers; but to what cause their marked degeneracy is to be ascribed, we are not prepared to say. The fact itself has been noticed by Prichard and Latham. Mr. Henry R. Schoolcraft, of Washington, who, it is well known, has for a long time been a close observer of Indian character, states that the same thing exists in connection with Indian tribes, both of North and South America.

This circumstance throws some light upon the African population of the United States. The blacks which have been brought to this country have been derived from four sources.

First. Prisoners that have been taken in war, especially in Ashanti, Dahomy, and the more powerful Kingdom of Soudan. As these, however, have always passed through the hands of the maritime tribes, the factors in this traffic, the handsome women have generally been culled out and kept as their own wives.

Second. Such individuals in the more powerful communities as have committed great crimes, or were too turbulent to be governed by themselves. The Feelah, at Wilmington, North Carolina, was one of this class.

Third. Such individuals in the larger communities as are feeble or idiotic of whom their families are willing to be rid. Against such the charge of witchcraft is generally preferred, and in this way they become the victims of the trade.

Fourth. These inferior clans which have just been described. They are either kidnapped by the more powerful tribes near them, or they are so debased as to sell themselves, and this has been particularly the case with the slaves exported from the Kongo. This last is the most fruitful source of all. We apprehend that three-fifths of the whole, if not more, have been drawn from these inferior clans, who are, indeed, the only true and fully developed negroes to be found in the country. These facts account for the great variety of character that was noticed, especially in former years, among the native Africans

who were brought to this country; and it accounts in part for the great diversity which is still noticeable in their descendants.

*Comparison between the inhabitants of Northern and Southern Guinea.* —In the preceding sketches we have pointed out all the important physical characteristics of the principal families of both North and South Guinea, and have no occasion to revert to the subject again except for the purpose of a few general remarks.

In Northern Guinea there is a nearer approximation to the negro type; the complexion is blacker and more uniform; the people are more robust and have larger frames, and are a heartier and more laborious race than those of Southern Guinea. On the other hand, the Ethiopian family have smaller frames, are, as a general rule, of lighter complexion, and have much better and more regular features. They have much more pliancy of character, and in the management of trade they display an amount of adroitness and cunning that the other race could never rival.

The dialects of Southern Guinea differ from those of Upper Guinea; 1st. In deriving the plural of nouns from the singular by changes in the initial syllable or by prefixes, whereas those of the other stock, with the exception of Fanti, make theirs in the final syllable. 2nd. By having a complete classification of their nouns, founded upon the manner in which the plural is derived from the singular, and upon the changes which the adjectives and pronouns undergo in order to accommodate themselves to these classes. The different dialects vary as to the number of classes of nouns from four to twelve, all of which are entirely unknown to the other family. 3rd. In reversing the order in which two nouns stand when one of them is in the genitive case. A Grebo, for example, would say, Dwe-a-yu, his son, or Dwe's son; while an Mpongwe would say, Onwana-wi-Dwe, the son of Dwe; and also when they are compound words: thus, a Grebo would say, Kobo-touh, literally white man's canoe, for a ship; an Mpongwe, on the other hand, would say, Ouwatanga, the canoe of a white man. 4th. In comparing, inasmuch as they have all three degrees of comparison;* they are declined, inasmuch as they have a regular rule by which the plural is derived from the singular; and they are inflected, inasmuch as they undergo a change in their radical forms to accommodate themselves to the different classes of the nouns, whatever the number may be; all of which are entirely unknown to the Nigritian stock. 5th. In possessing what is called an *indefinite* pronoun; a particle which performs a variety of offices and constitutes a prominent feature in the entire structure of the language. but is entirely unknown to the other great family. 6th. In possessing not only a large number of abstract nouns in common use, but a singular capacity for developing almost any number of new ones, especially verbal nouns. 7th. In the

* When the Mpongwe Grammar was published in New York, in 1847, it was supposed that the adjectives had no degrees of comparison; subsequently it was found that *kave* affixed to the adjectives gave it the force of the comparative degree, and *me* that of the superlative. This is probably the case with most of the dialects of the great Southern family of languages.

almost interminable inflections of the verb, whilst the very opposite is characteristic of Nigritian. It would be almost impossible to develop more than ten or twelve forms from a single root in Grebo and Mandingo; but as many as three hundred may be deduced from a single Mpongwe root; and yet so systematic withal as to avoid all confusion in the arrangement of its parts. 8th. In the decided preference it gives to the use of passive verbs, whilst the other stock scarcely has a passive at all. A Mpongwe would invariable say of a murdered man, *ajono nloura*, "he was killed by some one;" whilst a Grebo would as invariably say that *nyala na*, "somebody has killed him." For "he is drunk," the Mpongwe says, *abongo nlalugu*, "he is taken by rum;" the Grebo, *nanina*, "rum works him." The Mpongwe says, *mijaga nli njaua*, "I am sick with hunger;" the Grebo says, *kanu ori mli*, "hunger works me." This free use of the passive verb, however, is more prominent in the Mpongwe than in some other dialects of the same family. The Baleki, for example, is more like the Grebo than the Mpongwe in this single particular.

*Judaism in Northern and Southern Guinea.*—We have already mentioned the existence of Jewish practices in Western Africa. Circumcision prevails in both North and South Guinea, but whether it is of Egyptian or Jewish origin, it is impossible to say. Some traces of the Jewish religion are more fully developed in the northern and others in the southern region. The division of tribes into twelve families, as among the Grebos; the division of time into seven days, and the observance of lucky and unlucky days, as among the Fantis and Ashantis, the observance of new moons; the offering of bloody sacrifices, and the sprinkling of blood upon their doorposts and altars; in having a house of refuge to which an offender may fly, and the security of falling upon the altar, and in having a distinct priesthood, are practices that are more fully developed in Northern than in Southern Guinea. On the other hand, we have in Southern Guinea demoniacal possessions, prescribed forms and times for mourning for the dead, rules pertaining to cleanliness, purifications, and various other things of a similar character, more or less clearly developed. In both cases, these things are attended to without any clear idea of their import. If asked what they mean, or why they are observed, the answer is generally that "our fathers did it."

*Religious notions.*—The inhabitants of Western Africa without exception, so far as is known, have a clear and decided conviction of the existence of one great Supreme Being, the Maker and Governor of all things. They have an equally distinct idea of their own future existence. They have not, however, any suitable conceptions either of the majesty of the one, or the nature or consideration of the other. A native African would as soon question his own being as that of his Maker, or his present as his future existence.

Most of the tribes have two or more names for the Deity, indicative of his attributes or the offices he performs as Governor or Creator. Among the aborigines of Cape Palmas, there are indistinct traces of the Scripture account of the Creation, and the origin of the human

race, and the deluge, Noah's family, the wonderful feats of Sampson, and of the advent of the Son of God, for whom they have a name. It is very possible, however, that they received these things from the Roman Catholic Missionaries, who frequented the coast during the sixteenth and seventeenth centuries; and this is rendered more probable, as they couple with the above traditions, some idea of an intermediate or purgatorial state.

The natives of Upper Guinea practice devil-worship, but whether it is the *diabolis* or *demonia* of the Jews it is almost impossible to decide, probably both, though the diabolis is the more prominent of worship here, whilst demonolatry is the more marked form of worship in Southern Guinea. Their sacred rocks, trees, caverns, mountains, and groves, which are much more common in the northern than the southern section, are the abodes of these spirits. *Fatesches* or charms are equally common to both. They are perhaps more distinctly the object of worship with the Nigritian family, but are more used and more relied upon by the Ethiopians to secure blessings and avert evils. Over the minds of both, however, they hold a powerful and dominant influence.

In Southern Guinea the people have clearer and more varied religious ideas than are to be found higher up the coast.

In the first place, there is *Anyambia*, the Supreme Being, which literally means "good spirits," who is regarded as the Creator and the upholder of the universe. To him they ascribe all the works of creation, and whatever else they suppose to be beyond the power of any created agency. They recognise the hand of God in many things which affect their happiness and well-being, but never offer him any kind of formal or heartfelt worship.

Next to Anyambia in the government of the world, are two spirits, Onyambe and Ombwiri, the first of which, as the term implies, is the author of all evil, and the other is the author of good. With the character of Onyambe they seem to have but little acquaintance, but seldom fail to manifest symptoms of uneasiness when the name is used in their presence. Ombwiri would seem to be a family of spirits, as the term is used in the plural as well as the singular number. He seems to exercise a guardian care over the lives and the happiness of men, and he is also regarded as the author of everything that is mysterious and inexplicable.

Next to these are two other classes or families of spirits called *Abambo* and *Inlago*, the derivation of which is not known. These are supposed to be partly good and partly bad, and it is with one or other of these the people are said to be possessed when they submit to the ordinary process of exorcism. The Abambo are the spirits of those who have died in the immediate vicinity of any particular place; and Inlago are also the spirits of human beings, but they have come from some other region, and are therefore strangers. The worship and the exorcism connected with these two classes of spirits, form a conspicuous element in the religious worship of all the families of Southern Guinea.

The worship of ancestors, and the preservation of their bones,

which they suppose to possess extraordinary virtues, forms another prominent feature in their religious character, and belongs almost entirely to the southern branch of the African family. They use carved images in connection with this worship, and this is almost the only thing in Western Africa which may be strictly regarded as *idol worship*.

The inhabitants of this part of Africa have also a great deal to do with the inhabitants of the spirit world. On this subject their imaginations know no bounds. Without logical training, and without any revealed word to mark the bounds of human knowledge, the fancy is allowed to form almost any possible conception, and every conception becomes a reality in their mind. Every dream is construed into a visit from the dead, and the hints and suggestions which come to them through this medium, are more implicitly followed than any deduction of reason or duty that could be presented. If a man awakes up with pain in his limbs or muscles, he immediately infers that his spirit has been wandering about in the night, and has received castigation at the hands of some other spirit.

*Intellectual characteristics of these two branches of the African race.* —It might naturally be expected that there would be as much diversity in the intellectual as in the physical character of these branches of the African race, and this is undoubtedly the case. We can offer, however, only a few general remarks in elucidation of this subject. The glance we have already taken at their respective languages, indicates the general outline of their intellectual character. There can be no better exponent of the mind of any people than the language they speak; and without this it would have been almost impossible to find out anything satisfactory about the character of the African mind.

The natives of Northern Guinea are comparatively bold, energetic, abrupt, unceremonious, and are very effective where nothing more than an outlay of muscular power is required. They are kind and tractable when treated with kindness, but obstinate and almost irrecoverably sullen when wronged or injured. They are sociable and somewhat inquisitive, and when vigorously assailed, are prompt and sharp at repartee. They are not very remarkable, however, either for a good memory or a very lively or fanciful imagination. Their stores of unwritten lore are summed up in a few pointed proverbial sayings, a few general maxims in relation to the duties of life, and a few simple fables and traditionary stories, not embellished, however, by any remarkable touches of the fancy.

The inhabitants of Southern Guinea, on the other hand, are characterized by the very opposite of these. Softness, pliancy, and flexibility, are not more distinctive features of their language than it is of their moral and mental character. While a Grebo is rough, abrupt, and unceremonious in his bearing, the Pongo is all smoothness and civility. What one aims to effect by dint of energy and physical force, the other means to achieve by cunning and management. In opposing or injuring the one, you awaken his open and avowed resent-

ment; the other, though he feels quite as keenly, stifles his anger, or determines on secret revenge. But the predominance of the imagination is one of the most striking characteristics of the Ethiopian mind. It exercises so much control over the judgment and the understanding, that it unsettles the moral balance of the man. He almost loses the power of discriminating between the actual occurrences of life and the conceptions of his own fancy, and becomes grossly addicted to falsehood without intending it. The only way by which a stranger can get a correct insight into the true character of this people, is to become acquainted with their language and their fables. They are exceedingly close and reserved in relation to anything that would throw light on their inner nature. But in their fables, wild animals are invested with all their secret feelings and propensities, and are permitted to act them out, without awakening the apprehension in their own minds that they are only personating themselves.

*Relation of the modern Ethiopian and Nigritian families to the ancient Aboriginal races of Africa.*—On this subject it is well known that we have as yet but the most scanty materials with which to work. We propose therefore only to throw out a few general hints, and leave it for others to test their value.

Herodotus includes all the inhabitants of Africa beyond Egypt in two families, the Lybians and Ethiopians, and this distinction has been adopted by the ancients generally. Both of these terms, however, are used with considerable latitude. Lybia was generally applied to the aboriginal races living to the west of Egypt, between the Mediterranean and the Great Desert, among whom were the ancient Numidians, Mauritanians, and other families, the only descendants of whom, it is believed, are the modern Berbers.

Mr. Hodgson thinks he finds mention of several of these northern families in the Book of Genesis. The Lybians he takes to be the Lehabim of Genesis, and the modern Sheluks of Western Barbary to be the Casluhim of Genesis also.* But both Lehabim and Casluhim are the descendants of Mizraim, and this, if correct, would establish a relationship between the Lybians and the Egyptians, which is probably the case. There were two branches of the Lybian family, however, one of whom we know as the Phutœi, and the other as the Lehabim or Lubim. Genesius defines Phut to mean the Lybians next to Egypt, and Lehabim or Lubim denoted Libya, in a wilder sense. Knobel, on the contrary, defines Phut to be Lybia generally, and Lehabim or Lubim as the Lybia next to Egypt, and in support of this opinion he calls to mind the fact that the ancient versions, Vulgate and Septuagint, translate Phut by Lybians, that Josephus renders it Mauritania; and there was a river Phut in western Mauritania. The Fulah tribe, which was mentioned in the foregoing part of this paper, have a tradition that they are the descendants of Phut, the third son

* Lehabim is considered by the best authorities to denote the Lybians and Casluhim, the Colchians, who are stated by Herodotus (2, 104) to have been a colony of Egyptians.

of Ham; and it is a remarkable fact that they have retained this word in connection with at least three of their principal settlements in Senegambia, namely, Futa-Torro, Futa-Jallon, and Futa-Bondon. This fact possesses some importance. It shows either that they belong to another stock (the Nigritian family perhaps) that may have descended directly from Phut as the Mauritanians.

Ancient writers use the term Ethiopia in at least four different ways. In its most comprehensive use it was applied to all the dark races of man, irrespective of their places of residence. It was used again by Herodotus and others with reference to two countries, one of which was in Arabia Felix, and the other in Eastern Africa, the only difference in the inhabitants of which was that one had woolly, and the other straight hair. By others, and at a later date, it was applied to ancient Ethiopia, of which Meroe was the capital, which was the rival of Egypt in the arts, sciences, etc. It was applied again to all the inhabitants of Eastern Africa, the various tribes or families of which were mentioned by Agatharhidas, under the appellation of Zehthyopagi (fish-eaters), Hylophagi (fruit-eaters), Elephantophagi (elephant-eaters), Struthophagi (ostrich-eaters), and other tribes who feed on locusts, most of whom are supposed to have occupied the country of the modern Shangalla. There were also Troglodítæ (cave-dwellers), and a still more remarkable people mentioned by Herodotus, by the name of Marrobii, all of whom were included among the Ethiopians. At a still later period Ethiopia was used to designate all the districts or countries in East Africa, in distinction from those of Nigritia.

The term Cush in the Hebrew Scriptures, Dr. Robinson thinks, applies only to the Ethiopia of Arabia Felix and Ethiopia on the Nile. In the Septuagint it is interchangeably used with Ethiopia, which shows that the ancient Ethiopians were undoubtedly descendants of Ham. It is from this ancient stock that we suppose the modern Ethiopian family of southern Africa are descended. The present stock underwent so many intermixtures with Asiatic races, however, especially from Arabia, that it is difficult to say whether their descendants have more of the Shemitic or Hamitic element in their composition.

Dr. Prichard points out a relationship between the great Kaffir family of languages and the Coptic, on the ground that they make their inflections on the initial instead of on the final syllable. This is true of all the dialects of this family so far as we know, but to a certain extent only. The conjugations of the verb, the degrees of comparison, and certain forms of the indefinite syllable. So that if any dependance is to be placed on this single circumstance, it would seem to indicate that it was a Hamitic with Shemitic inflections, or *vice versa*.

In relation to the origin of the Nigritian family, we are not aware that there are any historical data on which to build an opinion. It is possible that they may have descended from Phut, according to the tradition of the Fulahs to this effect, and the fact that they have

retained this word in connection with at least three of their principal settlements in Senegambia, namely, Futa-Torro, Futa-Jallon, and Futa-Bondon. If it were possible to trace any affinity between their dialects and the Ethiopic family of South Africa, it might be supposed that they were a branch of the genuine Ethiopian family without any admixture with Asiatic races, but there is not, so far as we have been able to see, any affinity whatever.—*Princeton Review.*

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## A GLANCE AT NEWFOUNDLAND.

THAT travellers tell strange stories has long been a common remark. But now nothing is new for every one has visited everywhere, and therefore the proverb no longer applies. However let us suppose that a traveller does return from a summer tour, and is telling his friends what he has seen abroad, and suppose this to be against even common sense: that there only one line of labour can be pursued for a livelihood; that the owners of the soil have no right to adopt it, because the right of doing so is monopolised by another power far away, which power can never acquire a title of right of dominion over that country to hold it in permanence. Such indeed is a strange mixture of affairs and ideas, and one asks in what quarter of the world it is to be found. The traveller might answer "only a few days voyage from these coasts." But the most curious part of the matter is that such a state of things has been for a century and a half in existence, and besides, that it was determined on after long deliberations by some wise heads of Europe after several solemn meetings. And it is a condition of things too, so satisfactory that after one hundred and fifty years, the successors of those wise men meeting again to debate over the destinies of Europe, with one accord have confirmed the conclusions previously arrived at. Such in fact is the real history of the French possessions in Newfoundland; one of the most curious pieces of statesmanship, and one of the most unfortunate that could be found in the annals of European diplomacy. On that English coast where one only can live by fishing, the English have no right to fish, for it is a monopoly reserved for France.

It is a state of things only found on half the coast of Newfoundland, the northern half from Cape St. John to Cape Ray. The other half including the south coast is denied to the French, and remains exclusively English. This condition of things existed a long time before it became the subject of any regular convention. It even reaches back to the earliest history of the colony, and from the seventeenth century, the rival establishments are recognized, one of them, the English, having its main point at St. John's, and the other, the French, at Plaisance. The long wars which prevailed in the latter part of the century had of course their effect in these distant parts. Hence expeditions followed one after another with varied success, the

English becoming possessed of Plaisance and the French of St. John's, which was the case before the peace of Ryswick in 1696, and the same occurs so late as 1708 when the French were in possession of the whole island for many years.

Such was the state of things when the treaty of Utrecht took place, and the English and French were established at Newfoundland with the same rights. The French fisheries were then by far the most important. The thirteenth article of the treaty of Utrecht fixed the line of demarcation between them, and this was perhaps the first act of definition in the history of the colony. By this article the cabinet of Versailles ceded to Queen Anne the entire sovereignty of the island. But in this proceeding it was not a conquest that was recognised, for the fortune of war which had been so much against the French in Europe, was favourable to them at Newfoundland. It was a veritable concession made by the French of a right of which they were co-partners with England, and what is more, that the French in ceding the right of sovereignty, reserved to themselves the right of fishing from Cape Bonavista to Point Ricke in the north part of the island. The English had only a right to fish on the south shore comprised between the same limits, and to indemnify the French for the loss of their establishment at Plaisance, the treaty authorised them to fortify as many places in the island of Cape Breton as they pleased.

Things continued thus up to the treaty of Paris in 1763. At this time the war was disastrous for the French in these parts. They lost not only Cape Breton and the important post of Louisburg, but also the two Canadas. Nevertheless the terms of the treaty expressed five stipulations of the treaty of Utrecht, and as they admitted the necessity that France should have a point d'appui in those seas on account of her fisheries, the sovereignty of the isles of St. Pierre and Miquelon was ceded in compensation for the loss of the isle of Cape Breton. Such as it was it was secure. Twenty years later, in 1783, the fifth article of the treaty of Versailles referred to the arrangements of the treaty of Utrecht and sanctioned them afresh. Only a part of the coast belonging to the French having been abandoned by them during the war, and occupied by the English, it was agreed so as to prevent any difference to consider the eastern limit from Cape Bonavista to Cape St. John, at the same time that as compensation on the western coast the French limit should extend beyond Point Riche as far as Cape Ray. This was an exchange of territory most equitably conceived and readily admitted on both sides. It may be observed in conclusion of this historical diplomatic review of the treaty of Amiens in 1802, and later of the treaties of Paris of May 30th, 1814, and 20th November, 1815, refer to the existing state of things before 1792, that is to the arrangements of 1783 confirmative to those of the treaty of Utrecht.

Thus the curious condition of things above alluded to seems to have been brought about as affects the French possessions on the coast. In 1713 the English population of the island was too small to admit of any encroachment on French territory. About the year 1835 it

consisted at the utmost of 1,500 inhabitants. At present this number has about doubled, a fact which might occasion no concern on an extent of coast amounting to 200 leagues. Nevertheless it is sufficient to suggest at some future time more or less distant what will be the problem that will be before ministers, and already at different times is before the English legislation of Newfoundland, as one of their annual grievances. The French right there is not contested, but it is asked not unreasonably what would be the meaning of this abstract sovereignty inapplicable in fact and illusory.

The result of these considerations was in 1857 a convention, by which the French ceded to the English on certain points of coast line, where they had become established in large numbers, St. George among others, while the English in return conceded to the French the right of fishing on the coast of Labrador, as well as the liberty of trading for small fish to serve as bait. The French fishing prospects in future seem to be gravely compromised if this project should hold good, for by this unfortunate concession was given up the advantageous position of the French established by the treaty of Utrecht, and far from being a guarantee for them against future mishaps and differences with the English, the door was thus opened for a series of inevitable difficulties of which it is hard to see the end. Happily the parliament of Newfoundland refused to sanction this convention, and matters remained as before.

An agreement in 1859, between the commissioners of the two governments, decided that the adopted system was for the best, and that for many years to come it could not be improved. But such is not the view of the local parliament, which, although it disapproved of the convention of 1857, nevertheless found that things were not exactly for the best in their island, and at its last session in 1867 had a new set of conclusions drawn up to reopen negociations with France on the grounds pointed out by them. But their object was neither more nor less than to entirely overthrow the French position. Instead of one point on the French coast five were ceded, at the same time the French were to leave the English to build establishments on any parts of the French coast on the delusive restriction of their doing no injury to French fishing establishments, the French abandoning the right of fishing in rivers that has always belonged to them; the English are not disturbed in their fishing on any points of the French coast where they have not had the concurrence of the people. They accepted in short on this coast, where the treaties gave them exclusive right, the license allowed them temporarily by English magnanimity. In return for these numerous concessions, the point in question occurs: the liberty of the bait traffic. Whatever local patriotism may do, one cannot comprehend how such exaggerated pretensions can be officially advanced for French consideration.

Every year a small naval division is sent from France to Newfoundland for the protection of the fisheries, and if of so many expeditions the distance is compensated by the attractions of the country, this certainly is not the case with Newfoundland. It must

be at the same time acknowledged of the island that unique as it is now how it has been possible that the existing state of things could have been established so long without a multitude of difficulties, and how in all probability it will go on hereafter. Such a thing could not be possible in a country gifted with ordinary fertility, and would not succeed where it does but for the irremediable sterility which everywhere paralyses all efforts of the population.

The contrast of the two elements is marvellous; on the one hand are evident the inexhaustible treasures of the sea on which for many generations fishermen have become rich; on the other hand, in the enormous extent of one of the largest islands of the world, there is an endless succession of bogs, lakes, and swamps, interrupted only here and there by dense woods and forests. There is no beaten road; not even a pathway into the interior. This indeed is scarcely to be seen on the coast where even the dwelling houses of the fishermen would require it for communication, and should this be attempted it is no slight risk to pass a night in the woods. By sea in fact is the only way of getting from one place to another, and it is by following the shore from bay to bay that the task is performed by the small division of vessels of reaching various places. To see to the wants of the fishermen, to lend them some books occasionally, to make a note of their requirements, to attend to their healthiness, to settle the difficulties with English neighbours, forms the whole programme of work. The subject of the post, when it fails for example, which is not unfrequent, arises perhaps from the bad address of a letter, such as this:—To Mr. ——, a sailor on board the ship commanded by Captain ——, cruizing in the Gulf.

The various anchorages of the coast are unfortunately too much alike, all of the same appearance, the same strand in all respects, and perhaps the tiresome sameness arising from all this similarity of feature. Native deer, hares, bustards, ducks, partridges, curlews, may be had by wholesale if the hunter should fancy taking up a position in the places which are resorted to by such game. Nor is he who is given to fishing less fortunate. Newfoundland is a veritable land of promise for all. Where else in the whole world could one find the seine enclosing some ten thousands of cod fish at a single haul? Where except at Newfoundland are lobsters to be seen among the rocks at the bottom, that at low water a boat has only to go and get loaded with some four or five hundreds of them by merely taking them by hand. If the sportsman disdains such easy work as this, he would find plenty of another kind for rod and line, for in the small streams falling into the sea is an abundance of trout and even salmon. Then again, Newfoundland is one of the finest places in the world to study the wonderful ways of the beaver, that interesting animal whose sad fate at the hands of the hunter has drawn forth the most feeling expressions from the philosopher. Who can tell whether their curious cities, the accounts of which have been left us by hunters of the last century are still to be seen, and where the beaver lives in parties amounting to a hundred. Nevertheless there are plenty of isolated

specimens, where the alder of birch trees are seen near a lake (but never the fir), and bits of their habitations scattered about the bank, left like carpenters' chips; from these signs one may be certain that a family of beavers is not far off. A beaver camp abandoned is the most interesting of sights, and better still if it be seen on the day in which it is deserted, by reason perhaps of the invasion of some unfeeling hunter who has broken down one of the walls of the building and displaced the roof like that of a pigeon house. It is then that the series of apartments are evident adjacent to each other similar to alcoves; with their beds of moss and soft grass, and their pillars of birch twigs, while in the central part the space left is sufficiently spacious to contain the supplies of food in the way of fish, etc., answering in fact the purpose of a parlour in which to enjoy the meal.

The principal amusement of the visitor to Newfoundland is to study the habits of the curious population, who under the pretext of looking after those establishments in winter that have been formed about the coast, frequented by ships. Of the original English, or rather Irish, it is difficult to comprehend what motive could have induced them to keep themselves voluntarily exiled on these shores. It cannot be attributed to the certainty of gain, for their very first glance would be sufficient to hint to them what must evidently be their lot by staying; nor can it be the love of the soil, for besides not being born on the island, their wandering life takes them from one shore to another. No, what keeps them here is a vague feeling of independence and a want of reflection, which they themselves do not comprehend, and keeps up an incessant drain of such abandoned specimens of the Anglo Saxon race. Thus these practical people live the hardest of lives, the most primitive kind of existence possible, independent, and beyond the power of the magistrate and all kinds of tax, which belong to an organized society. The ship which is destined to protect their establishments during winter ministers in part to their wants by the provisions which she leaves them. As to the rest, hunting and fishing furnish them with something with which to trade when coasting vessels come for seal skins. Romanists for the most part, they welcomed joyfully the arrival of a French vessel, on board of which they find a chaplain, and it is a grand thing for them when a Sunday is passed by such a vessel at anchor in the bay, thus affording them the opportunity of assisting at the mass on board. Such an occasion has been sufficient even to produce the crinolines! And yet spiritual assistance was not what they were absolutely in need of, for the diocese of Avranche has the honour of sending a priest to them every year as early in the season as possible, and this mission has been even entrusted to an aged fisherman for several years who had entered holy orders in consequence of troubles in his family. But the distances are too great and communication too difficult to be performed by one person only. Moreover it has happened for several winters, occasionally that of having a ship of war at Newfoundland not provided with a chaplain, so that anywhere that she might stop the unfortunate ecclesiastic has found a large arrear of work to get through. But it must be said that

notwithstanding the absence of a priest marriages were by no means less on the coast, and children were born with as much regularity as if no formalities had been omitted. It is not uncommon to see the captains of fishing craft coming to French ports every year bringing pictures of the fashions among the families of their relatives for sale, for their benefit. Who make them it is difficult to say. Thus every day some new mother of a family will go on board a vessel, beseeching her priest to rectify her position and to bless her marriage, at the same time baptising her three or four children. It may be added that these episodes are imprinted with some seal of good faith and offhandedness to complete the job.

Far from considering the French as usurpers of the soil, our Englishman (and no captain styles his guardian by any other epithet than an Englishman) awaits impatiently every year the return of the fishermen; for this return which is at the time of the fine season is also that of the beginning of the cod fishery. The first navigators of the shores of Newfoundland have remarked (at least so says Mark Lescarbot in his whimsical way), when the winter is at hand the fish are frightened, and get away from the approaching stormy weather wherever they can: but no sooner does the fine weather of spring return, and the sea is again quiet as if after the seige of a city peace being made, the people who had been until then prisoners sally forth in tribes for the country enjoyment, so likewise do these citizens of the sea after the fierce storms of winter are over, they likewise rush abroad from their places of confinement, seeking the saline fields of the sea, they skip about, they jump for joy, they fall in love, and then they look for the shore.

The various places assigned to the French vessels on the coast of Newfoundland are marked out in advance for a term of five years by a general assembly of owners held at St. Servain. Those vessels intended for the western coast, leave France early in March; those for the eastern coast, not before the end of April; but for neither of these is the passage very pleasant. It is necessary they should get to the northward to make a good passage, to find a fair wind, and the sea there is rough at that season—moreover there is the chance of meeting icebergs. Every one on board watches for the first appearance of the *godillon*, a bird well known to Arctic navigators with its black and white plumage, pointed beak, and large pattering feet. But this bird is a sign of the presence of ice. And soon about the vessel do these gigantic mountains of floating ice assemble and often even when the snowy summits of the land are made out over a harbour which they expect to gain often are they separated from it by an impassable barrier of ice, for the disappearance of which they must wait patiently. At length the passage is clear, they get in but the voyage is not completed until the vessel is secured amidst the ice, by some four fastenings or so at the head of the creek.

On the morrow of their arrival commences the campaign. The work requiring first attention being to launch the boats again that were hauled ashore, at the end of the preceding year. At the same time

it is necessary to re-establish the curing house, a large loft elevated on piles, and covered over by a sail for a roof, where the fish undergoes the first process of curing. This is always constructed on the sea shore and projects out sufficiently on the strand to allow the boats loaded with fish to approach it freely. At a little distance behind this building stands the small huts which serve as the lodgings of each colony of fishermen during the campaign, their roofs formed of plank protected by a coal tar, wall of split trunks of fir-trees driven into the ground, the openings between them being filled up with moss. Inside they have a passage again formed of the split pine, and right and left the bed places of the inmates, those of the men being always filthy and repulsive.

There are other huts for a class somewhat superior to those just mentioned, also adapted for provision store, a baking house with its oven, etc., for it would not be fair to forget to notice this solitary benefit which the sailors of Newfoundland enjoy of fresh bread as much as they like. In fact the cares of the laborious life led by these people at Newfoundland do not employ much of their attention. Starting for their work before break of day, and returning at night only, passing many a long hour in their boats at sea, and only living to fish, and seeing no other than the cod, is their every day programme. Hence the curing house at certain times is the scene of bustle and activity in proportion as the boats follow each quickly or not with their several cargoes.

Scarcely are they arrived and secured to the curing house, when the crew split open their fish and throw them to children, who range them on the table for further process. Here the victim is seized and a single cut of a knife beheads it, when with entrails removed, it is passed on to the next neighbour, who with another blow effectually removes the backbone from its place. The fish is then in the hands of the salter, who lays it flat between two layers of salt with the inside uppermost.

When the cod is once beheaded, split, and salted, it remains only to be washed and dried. The first operation is performed by a moveable open cage that is hoisted over and dipped in the sea. The second, which is a far more delicate operation, demands on the part of the manager an intimate acquaintance with the meteorology of Newfoundland, for a few hours only of a burning sun will be sufficient to reduce his fish to a mass of fat of no value. This drying is done at the "graves," that is, certain places on the shore paved with stones smoothly and neatly, and from thence after having undergone the effects of as much sunshine as necessary, the fish is embarked in bundles, piled in pyramids in the last days of fine weather before their departure in September.

Such is the fisherman's life on the coast of Newfoundland, which as may be seen, does not allow much time for repose, and such is the kind of labour which too often gains but a pitiful reward. And notwithstanding such a life, it becomes even harder, when instead of remaining quiet on shore, the fisherman has to go to sea, and fish on the

banks. There his craft is neither quiet nor secured to an anchorage as in a bay—but on the wide and open sea, often exposed to rough weather on those banks where some of the vessels anchoring are thence termed bankers (after the scene of their labours), which unhappy bankers may be said to endure the very sum total of maritime miseries. For these people the day's work begins long before sunrise. From two in the morning the crews of these craft may be seen one after the other, coming out of the forescuttle, and hauling their boat up alongside, getting into her. The morning is still dark, and the breeze occasionally freshening comes in squalls. No matter, away they go well out to seaward, and leave their craft to look for those lines which they have already laid down for fish. And when these are found, some three or four thousand yards must be hauled in gently one line after another, and some six hundred hooks looked to, suspended to them at various distances apart. With such occupation the day breaks on them, but it is not till about eight in the morning that they get back to their craft to deposit the fish they have taken. Then they are to be opened and cleaned, and they return to bait their lines, for they must do this so as to return to their craft before sunset.

The boats once started and soon out of sight, no one is left in the craft, but the captain and two men, who continually employed in cleaning, preparing, and salting the fish, must at the same time keep a constant look out on the horizon, to signalize the position of the boats by firing muskets in case of bad weather or fog, and to facilitate if necessary their making for the land. This double kind of duty consisting in anchoring and laying down the lines is called by the fishermen the sea work, and as from thirty to thirty-five seamen are necessary to complete the cargo of the vessel, and it is necessary frequently to change her anchorage, a tedious and trying operation in great depths, it follows that the length of a voyage extends to above forty days, in which they have to undergo this incessant and fatiguing labour. Happy are they if no misfortune overtakes them, if none of their boats miss their evening call. No one is prouder of his occupation than the fisherman of the banks of Newfoundland, and nothing is more justifiable than this feeling of conscientious superiority.

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## On Projectile Anchors.

[We have just received the following, to which we give immediate publication.]

Boston, 10th October, 1870.

My dear Sir,—Referring to your number for February last, pages 93 and 94, in which I find notices of Rogers's projective anchor, I would suggest that a somewhat longer bore than that of a mortar should be used to project the anchor, provided the mode of charging the gun be adopted such as the French use for firing the Portamarres

W W

or Fléches, for carrying a line to a wreck. The accompanying statement proves conclusively, that by leaving a vacant space behind the cartridge, and firing the same near the forward end, a heavy projectile and a correspondingly heavy charge of powder may be safely used, and I think this mode of sending forth Rogers's anchor will be found safe and effective; more so than in firing it out of a mortar.

This projectile will be found very useful to throw beyond the shore line of breakers for the purpose of facilitating the launching of a surf boat, and hauling her off beyond the worst breakers. I have recently made some valuable experiments on the south shore of Nantucket with a "Monitor Raft," known in England and France as the Ferry Raft, and similar to the one which in 1867 went from New York to Southampton in forty-three days with a crew of three men. I give you herewith an extract from the *Nantucket Inquirer*, in which you will find an account of carrying out an anchor of 1200 lbs. on a two-cylinder monitor raft through a surf and reloading it, with a crew of seven men. It was hauled off by means of an anchor of 75 lbs. attached to a whale line, the anchor and line having been first carried out by the raft. Occasions will occur when it would save valuable time to fire off an anchor of 75 to 100 lbs., while inflating the raft, which is made of vulcanized rubber, covered and supported by stout canvas, and requiring four to eight minutes to inflate.

The greatest difficulty in launching a boat or a raft occurs, on most beaches in getting over the inner breakers by means of oars. The surf men of Nantucket were very unwilling to attempt to launch the raft until a small anchor was laid out; when this was done they fully tested its buoyancy in a heavy surf and were pleased; but when I showed them how useful it could be made in saving *property*, which they know is a paying business, they were delighted.

Had the unfortunate *Captain* been provided with two or three monitor rafts, costing each about £120, many lives might have been saved, provided they were kept inflated, and the men could have got on deck.—I trust you will find this letter and the paper enclosed of sufficient interest for publication. I am, faithfully yours,

R. B. Forbes,
*Chairman of Standing Committee*
*Massachusetts Humane Society.*

The Monitor Raft.—*From the "Inquirer and Mirror."*

Boston, September 10th, 1867.

The extracts sent to you from the letters of experts who have tested the Monitor Raft, and the experiments made on the 9th inst., will have fully established the utility of the raft as a surf-boat, and especially for a conveyance for passengers from a stranded vessel; and the trial of Friday, the 23rd, must have satisfied the most sceptical that the raft is also a very valuable auxiliary for wrecking purposes. Although the surf was not heavy nor the wind strong, there was enough of both to shew that no surf-boat could do what was done with perfect facility by the raft. By the help of a small derrick, easily

carried by two men and an ordinary tackle, the crew of seven men placed an anchor weighing 1036 pounds, without including the stock, which must have weighed at the least 200 pounds, on the stern or shore end, and by the help of a few of the spectators it was shoved off, and the crew hauled it off by a whale line previously sent off with a small anchor. As no one doubted the facility of dropping the anchor and weighing it again so as to bring it near to the beach, that part of the process was omitted, and the anchor was landed again on the raft, the derrick lifting it off with great facility. After thus fully satisfying all present of the utility of the raft for carrying out an anchor, and for landing cargo of considerable weight and bulk, the crew, under the able management of Capt. J. A. Brown, of Barnegat, pulled to the westward, where the breakers ran in quite sharp, and performed various evolutions, such as turning short round on the very verge of the beach and on the breakers, pulling along shore in the trough of the rollers, and once backing in until the steering oar could touch the shore, she was pulled off easily. In short, nothing could be more satisfactory. The crew, composed of experienced surfmen, one and all assured me that she could be got off when any boat could go, could be turned quicker, and that no boat on the island could have taken off the anchor on that occasion; all of which I was fully convinced of before, but it was very satisfactory to find my theory fully confirmed by the experienced seamen of Nantucket. Captain Folger, agent for certain underwriters who own surf boats and wrecking appliances, said that he hoped I would condemn the raft for humane purposes in order that he might have it for wrecking.

I have only to add that I have no interest in the raft beyond that of calling the attention of all Humane Societies and all wreckers, all steamship and steamboat owners, all interested in vessels of war and passenger ships, to the great value of it for many purposes, involving the saving of life and property. It is not necessary to look back a great many years, in order to call to mind the terrible loss of life on the ocean for want of some such vehicle as the Monitor Raft. Take for an example the recent loss of the *Captain* with nearly five hundred souls. If she had been furnished with three Monitor Rafts of three cylinders each, ready on the hurricane deck, nearly all would have been saved. Not a year passes without a great loss of life on our rivers and lakes, for want of some such thing as a Monitor Raft.

R. B. FORBES.

We publish below the extracts alluded to, above.

Extract from a letter of Capt. Comstock, of the steamer *Golden City*, lost on the coast of California, dated April 18th, 1870.

"To Capt. Thompson,

"I take pleasure in reporting the great efficiency of the Monitor Raft, in saving life and property from the *Golden City*. Amid all the circumstances attending the wreck, the raft proved much more efficient than the boats, and was used in preference for landing the old and the sick, all of whom were landed dry, there being considerable surf at the time. The life-boats were launched with difficulty by twenty

men, while the raft was got off without trouble, and made two trips, to one of the boats. In thirty days at the wreck, nearly all the boats were stove and rendered useless, while the raft remained in good order. In sending boats to intercept steamers, in a high surf, they got off with great difficulty, one being stove, and others half filled with water; the raft conveying them out, and returning with perfect safety.

"I would rather take my chance on one of your rafts than in any life-boat."

Extract from a letter of Capt. J. W. Smith, steamer *Santiago de Cuba*, U.S. Navy, January, 1867.

"To Capt. Thompson, President of Life-Saving Raft Company.

"While at Greytown, Nicaragua, December, 1866, in a heavy gale, when no boats could reach the ship, I launched the two-cylinder raft, and sent ten men in it with a line attached, fearing they could not get back, and slacked out one hundred fathoms, and gave orders to pull back to the ship, which they did with perfect ease. I then cast them adrift, when they pulled to windward with four oars only, at the rate of five miles an hour, taking in no water and riding the sea to perfection as well in the trough as before the wind.

"December 11th, launched the raft and sent twenty-five soldiers with knapsacks, and four days' rations, with a crew of four men and an officer. All landed without getting wet, through a fearfully high surf, the gale increasing at dark. I ran the ship three miles off shore and anchored, not thinking they would attempt to pull off that night, but to my surprise, at nine p.m., the raft was alongside, the four men with the officer pulling her dead to windward through a heavy sea in a gale of wind."

Extract from a letter of G. E. Halloway, master of U. S. steamer *James Adger*. Aspinwall, March 19th, 1866.

"In obedience to orders I have tested the steamer *Henry Chauncey's* raft, by placing on it fifty-five men, weighing 7975 pounds, with which the floats were submerged about half their diameter. I pulled round the ship with six oars, in two minutes, force of wind, five, in open roadstead with considerable sea; all were kept dry excepting a little spray at the bows. I think I could land fifty men safely on a beach in any ordinary gale, and with them a suitable crew."

I received from Mons. Auguste Delvigne a drawing and description of his new piece of ordnance.

It is very simple in form, being made of a brass casting, without trunnions, bored directly through, and the breech is secured by an iron tail-piece which screws into the gun and has a pointed end. As this piece weighs only about 42 lbs. it can be carried by a single man, and when to be fired from the land the tail-piece is merely thrust into the soil at an angle of thirty to thirty-five degrees—the recoil merely buries it up to the breech, when fired with wooden arrows and a small charge. For service on board ship, or on hard soil or rocks, it has a rough wooden block upon which it can be mounted at short notice.

By a peculiar arrangement, both iron arrows of small diameter nearly

filling the bore, can be used for sending a line against the wind, and wooden arrows of large diameter, for sending with a fair wind or in a calm. The wooden arrows float, and are therefore used in preference to iron in most cases.

Mons. Delvigne's system of loading differs from the ordinary mode—he leaves an empty space behind the cartridge, and he ignites it at the forward end, whereby the shock is more gradual, that is to say, the heavy projectile starts more gradually. In making a series of experiments in 1865, under the auspices of the Minister of Marine, it was found that an ordinary thirty-pound navy gun, charged with seven kilos. of powder and an elongated projectile weighing forty-five kilos., one gun burst at the eleventh and one at the twelfth fire, while Delvigne's mode of charging enabled the *same gun with the same charge to stand from* 108 *to* 178 *shots*.

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## On the Social Condition of Merchant Seamen.

[With the two following papers read at the late meeting at Newcastle: defects in our maritime laws pointed out.]

On the section resuming business, Mr. Edward Shotton, of North Shields, took the chair, and called upon Captain W. Dawson, R.N., to read his paper.

Commander W. Dawson, R.N., read a paper on the "Social Condition of Merchant Seamen." He said:—The merchant fleet of Great Britain (exclusive of river steamers) is manned by 195,490 men of all ratings, except that of master. Of these, 49,530 are employed in the home trade, and 12,313 in the partly home and partly foreign trade; whilst 132,647 men are engaged in the foreign trade. In this immense fleet, traversing all the waters of the globe, there are to be found every variety of social condition.

The problem before us is how to multiply the number of considerate shipowners, of intelligent, thoughtful officers, and of healthy, skilful, and contented seamen; and how to enable the latter to provide in their absence safe homes for virtuous wives and growing children, and to make suitable provision for old age, or earlier death.

1. The seaman has a fair claim to that legal protection to life which is afforded to every other British subject. A medical man should certify, after due inquiry, that the alleged cause of death from disease at sea is as reported; and that the medical treatment was correct. Whilst an inquest should take place on every occasion in which death has been sudden or resulted from apparently unnatural causes, whether the body be forthcoming or not. During the year 1869, there were 4,832 deaths at sea, of which nearly three-fourths are returned as "accidental." Had these so-called "accidental" deaths occurred on shore, the law, unasked, would have stepped in to inquire how they happened, and who killed them. No one acquainted with the reckless waste of life engendered by this impunity can fail to observe how possible it is for unquestioned deeds of violence, or culpable negligence

to jeopardise the lives of seamen navigating distant seas, far from the reign of law, of social influence, of public opinion, and of the press. Of the 3,116 so-called "accidental" deaths acknowledged to last year, nobody knows and nobody inquires how many were cases of manslaughter.

2. Even where death does not immediately ensue from the loss of ships at sea, such loss rarely takes place without hazarding human life. The cause of shipwreck becomes, on that account, a fair subject of legal investigation, irrespective of the property involved. The cases are believed to be frequent in which excessively insured ships are lost or destroyed through culpable negligence in the equipment, loading, or manning; if not by more direct means. Where there is no marine insurance, ships are better manned, better officered, and better found; nor are they so frequently overloaded or badly stowed, and the waste of human life is consequently vastly reduced; whilst a very considerable proportion of total shipwreck happens to vessels insured for total loss.

A system has got to be devised whereby all this misdirected self-interest and greedy speculation can be turned into a means of saving instead of destroying life. Legal protection of life at sea is, in the absence of self-interest, all the more essential. The State is as much bound to protect the lives of its subjects on shipboard as on railways, in mines, etc. The law of inspection should be *extended* from passenger ships to all vessels. The loss of every vessel at sea should be the subject of legal prosecution as in the Royal Navy. The County Courts with Vice-Admiralty jurisdiction, would, with a public prosecutor, supply the needful legal machinery. Such legal procedure would not only be the best life-saving apparatus in the world, but would incidentally throw light upon the social conditions of life at sea.

3. The frightful debaucheries in port shorten the lives of seamen, and make them unfit to withstand exposure and extreme physical exertion at sea. This is greatly promoted by the system of discharging crews after every voyage to seek new employers, and the consequent lack of sympathy and personal knowledge between employer and employed.

4. The untold miseries to which seamen and their families are exposed from the crimping system, with all its drunkenness, robbery, and disease, are mainly attributable to the delay which arises between the dismissal of the crews and their payments. If, instead of being dismissed on the day of arrival without a penny in his pocket, to wait for his back wages from one to five days in the midst of the crimping locality, the inward-bound sailor could receive his money in the docks on the day of discharge, he could go at once direct from his ship to the railway station, or to his family, on an omnibus or baggage-cart, without setting foot on the perilous neighbourhood of the docks and shipping offices. Alter the law, and you alter the man. The monetary arrangements of the Royal Navy were formerly quite as bad, and produced like results. The crew of a ship-of-war paid off alongside one of her Majesty's dockyards are now models of sobriety and respectability.

4. Married sailors' homes in which the semi-widow and children can be lodged in moral safety during the prolonged absence of the husband and father, are much needed. Respectable boarding masters should also be licensed to lodge sailors, and to supply crews to ships, under the control of the local superintendent of Mercantile Marine.

5. To enable seamen to make provision for their families in their absence, monthly allotments to near relatives of a portion of the accumulating wages, should be made compulsory on the owner, in the case of all "very good" charactered seamen, who are desirous of obtaining this indulgence. The signature of the shipping master to the allotment note should render the government liable for over payments, provided proper measures have been taken to recover deserters and report desertions. To meet this liability, a per centage should be charged to the seaman on every allotment note countersigned. Allotments of wages to near relatives is the rule in the Royal Navy, and it is stated that the ill-fated crew of the foundered low freeboard turret-ship, *Captain*, thus allotted from £4,000 to £5,000 annually to their families.

6. Advance notes, the fruitful source of much demoralization, to be discontinued whenever allotment notes are granted; and in other cases, only to be given in the form of additional subscriptions to life insurance, or pension funds.

7. Life insurance, and annuity or pension funds, to be established and guaranteed by government, in connection with shipping offices.

8. An optional insurance fund against accidents at sea, during given voyages out and home, to be formed in connection with the shipping offices, on the principle of the Railway Accident Insurance Association. It is believed that by the payment of half a crown or more, according to the voyage and season, the sum of fifty pounds might be assured to a near relative in case of accidental death during the voyage out and home, or a proportionate allowance in case of accidental injuries.

9. The medical inspection of seamen going for long voyages in ships without surgeons should be compulsory, as in the Royal Navy.

10. The Contagious Diseases Act to be extended to the waterside parishes of the chief mercantile ports.

11. The educational standard for admission to officers' rank to be raised. It is now extremely low and easily to be evaded.

12. Masters voluntarily passing extra examinations to be distinguished by a specal title and uniform, and to receive increased disciplinary powers.

13. Under the repealed Navigation Laws our ships carried, in 1834, no less than 34,858 apprentices. On their repeal the apprentices fell to one-third that number in 1852. In 1857 they numbered 32,096; since which date there has been a steady annual decline, until they reached last year only 16,935. There are thus only 4,234 fresh entries annually to replace 16,000 seamen lost to the Mercantile Marine. The remaining vacancies are filled up by able-bodied foreign seamen, and by low caste British adult landsmen. If British-born seamen are more

expensive and no better than foreigners, we have no right to expect shipowners to pay the difference. Moreover, it is only sailing ships which can efficiently train apprentices. Are the owners of these to bear the charge of rearing seamen for steam also? There are four systems of training ships extant; those under the Industrial Schools Act of 1866 are most applicable to provincial ports, and will, it is hoped, be more generally instituted. But when these training ships increase in number, each producing a hundred prime boys annually, the question will arise as to obtaining for them continuous employment at sea. Will owners of sailing ships receive these carefully-trained and skilful lads as apprentices, in sufficient numbers to supply both steamers and sailing ships with British-born seamen?

14. Unavoidably withdrawn from most of the public as well as private means of religious improvement, the sailor is dependent on his employers and on his officers for the most elementary opportunities of Divine worship. Harbour missionaries are chiefly effective when their labours result in the establishment of daily prayers and Sunday observances at sea, with the supply of libraries and school requisites. The social condition of merchant seamen will never be satisfactory until their employers and officers are led to entertain a just sense of their high responsibility as regards the spiritual as well as temporal welfare of those over whom they are placed.

The Chairman said that there was a feeling that the other papers should be read before there was any discussion.

## Disasters at Sea and how to Prevent them.

A voluntary paper on the subject was read by Alexander Hay, Esq. It pointed out what the writer considered a series of defects in the system of shipbuilding. Is it, he asked, any wonder, then, that what with our practice of deep-loading and of reckless shipbuilding, we have new vessels which go down into the depths of the sea, and that sea as calm as a mill-pond? There is also another evil which it would be well to look to, and that is the responsibility of captains at sea for losses of life in the various crafts which they navigate. He knew one instance of a vessel sailing from a great commercial port, and it was intimated by the master rigger that there was a defect in one of the spars aloft, so much so that a knife could be thrust up to the hilt in the rotten place. The overseer or ship's husband, however, thought no doubt of incurring the owner in expense, and being newly in the employ, gave orders that, instead of being condemned, it should be plugged up. The vessel left the port, and not so many months after lost the second mate and seven of the crew, who fell with the main-yard into the sea and were drowned. It was, Mr. Hay remarked, somewhat lamentable that coroners' inquests were not held on the return of ships to port, in order to make culpable parties answerable for such negligence. Nothing short of a thorough inquiry into every death which happened on shipboard should be insisted on, as a precaution against the recklessness of human life at sea. He could not

see why a shipbuilder, endangering the lives of seamen by trashy structures, was not as culpable in causing disasters as the signal-man on the railway line, from whose blunder a collision might arise, and why pecuniary damages were so readily obtained on land, whilst at sea, where the grievance was equally great, none were to be had.

## WRECKS AND CASUALTIES.

Mr. Henry Jeula, of Lloyd's, contributed "A memoir of the recent history and present position of statistical inquiry in relation to maritime disasters, and some examples of results already attained." The paper opened with the remark that the magnitude of the maritime interests of Great Britain, her colonies, and of foreign States might well induce the belief that the information relating to losses and accidents at sea, obtained at great pecuniary cost and constantly accumulating, would have been so carefully tabulated and arranged that by this time fair and valuable deductions could be obtained from the facts recorded; but, instead of this, until very recently, the hope of any such useful results following the registration of wrecks and casualties was apparently considered altogether Utopian. The "Wreck Register of the Board of Trade" was mentioned as a most useful compilation, and reference was made to the "Bureau Veritas," in Paris, as publishing some interesting particulars relating to losses reported through that agency.

An account was given of the "Statistical Committee of Lloyd's," formed in 1866, for the purpose of arranging a systematic registration of the maritime casualties reported in the daily "Lloyd's List," showing that these are now classed under nineteen principal headings, with minor divisions, in addition to which the scheme includes results to ship and to cargo, the number of crews saved or drowned, and lives lost so far as reported. A geographical arrangement is added, consisting of thirty-one sections, grouped in four divisions, giving the voyages to and from, etc., with the results under six general heads, as total loss, minor damage, etc., the whole so disposed that monthly, quarterly, half-yearly, and annual comparisons can be readily made. This committee had just issued its fourth annual analysis, showing the casualties of 1869 in relation to the average of the three previous years. The actual coincidence of some of the figures to even a fraction, and the close approximation of many of the per centages, could scarcely fail to be remarked, and tended conclusively to show that maritime casualties, like other events, were under divine law, and could be rendered amenable to statistical research, and ultimately to scientific treatment.

The total number of casualties reported in 1869 was slightly in excess, being 11,606, as compared with the average of three previous years—11,521—an increase of eighty-five in number, or ·79 per cent. This was accounted for by steamers giving a considerable increase—sailing vessels showing a slight decrease, say 10,359 in 1869, against a three years' average of 10,453, a decrease of ninety-four in number,

or ·90 per cent. Casualties to steamers, as already mentioned, showed a considerable advance, being 1,247 in 1869, as being compared with an average of 1,068—an increase of 179 in number, or 16·76 per cent. Diagrams and an appendix, with various tables, were added to illustrate the monthly variations. The first two quarters of 1869 gave a considerable reduction in casualties to sailing vessels, and the last two quarters a considerable increase, but steamers were in excess in every quarter. The average annual number of losses posted on "Lloyd's Loss Book" for ten years ending 1866, inclusive, was 3,443, and for ten years ending 1869, inclusive, it was 3,343, being a decrease of 100 in number, or 2·90 per cent. Reference was made to the influence of increased rapidity in receipt of information as shown in the comparative figures for different months; also to the greater equality of monthly proportion throughout the year relating to steamers over sailing vessels, and to total losses over minor casualties, which seemed to be indicated by the various diagrams and tables. The following classes of casualty showed a marked increase in 1869:—Collisions, missing ships, burnings, dismasted, etc., jettison of deck-load, etc., ship damaged, loss of sails, etc., while several other classes gave a considerable decrease. The paper then referred to loss of life at sea, the returns relating to which were not so complete as could be desired, still so far they had been encouraging, 1869 giving the number of crews saved from sailing vessels at 1,069, against an average of 686, an increase of 55·83 per cent.; from steamers, fifty-nine in 1869, against an average of twenty-nine, an increase of 103·45 per cent.; while crews drowned were in 1869 fifty-two, the average being forty-four, an increase of only 18·18 per cent.; and the "lives" reported lost in 1869 were only 1,643, compared with an average of 1,703, a decrease of 3·52 per cent. Several comparative diagrams and a copious appendix, with tables, etc., accompanied and illustrated the paper.

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## Royal National Life-Boat Institution.

A meeting of this Institution was held on Thursday, 6th October, in its house, John-street, Adelphi; Thomas Chapman, Esq., F.R.S., V.P., in the chair; there were also present Sir. E. Perrott, Bart., Admiral Ryder, Sir William Clayton, Bart., Admiral M'Hardy, Colonel Palmer, Captain Ward, R.N., and Richard Lewis, Esq. The minutes of the previous meeting having been read, the silver medal of the Society, a copy of the vote inscribed on vellum, and £1, were granted to Mr. John Cummins, coxswain of the Arklow life-boat, and £14 to the crew of the boat, in acknowledgment of their gallant services in putting off in that boat, on the 2nd September, during a heavy south-westerly gale, and saving the master and his wife and the crew of three men from the schooner *Dove*, of Barrow, which became a total wreck on the Arklow Sandbank. When rescued from the rigging, the five poor creatures were in a most exhausted state, as they had

been exposed there for some hours before their perilous position was discovered, the darkness of the night preventing their being seen, and they being too far from the shore for their cries to be heard. Much risk was run by the life-boatmen in effecting this rescue, their boat having been repeatedly filled by very heavy seas. £9 4s. were also granted to pay the expenses of the Greencastle (Londonderry) life-boat in going off during a very heavy gale in a tremendous sea, on the 9th September, and saving the crew of four men from the dismasted schooner *Caroline Martin*, of Glasgow, as she was driving on the Tun Bank. The men had a hard struggle against the heavy wind and sea, but happily their determined efforts to save the endangered men were crowned with success.

The Newbiggin and Cullercoats life-boats had also recently been instrumental in performing good service by bringing safely to shore two fishing cobles and their crews, numbering seven men; the boats had been overtaken by gales of wind, and would doubtless have been lost with all hands had it not been for the timely aid afforded by the life-boats. The Maryport life-boat had also rendered material service to the ship *Atlas*, of Stavanger, which was in a dangerous position off that life-boat station; the vessel was afterwards brought safely into harbour. The Ramsgate life-boat had been out on service three times in the course of the past month in reply to signals of distress during stormy weather; on the last occasion the boat remained for some hours alongside the smack *Emblem*, of Colchester, at the request of the master, until the vessel, which had gone on the Goodwin Sands, was enabled to get safely out of her dangerous position.

Rewards amounting to £92, were also granted to the crews of the life-boats at Whitburn, Palling Hasborough, Newhaven, Teignmouth, Holyhead, New Brighton, Southport, Whitehaven, Campbeltown, Dundalk, and Courtown, for different services during the past month. £5 was also granted to the crew of a fishing boat belonging to Cullen, N.B., for saving, under praiseworthy circumstances, four of the crew of another boat, which had been capsized near Cairnbulg Head, on the Scotch coast, during a strong westerly gale, on the 12th Sept. Various other rewards were likewise granted to the crews of different shore boats for saving life from wrecks on our coasts. Payments amounting to £3000 were ordered to be made on various life-boat establishments. The Institution is earnestly appealing for support to enable it to meet the constant heavy expenditure on its large life-saving fleet, now numbering 233 boats.

The Bristol Histrionic Club had just sent £40 to the institution, being their contribution for the current year in aid of the support of their life-boat, named the *Bristol and Clifton;* T. H. N. had also forwarded £10 to the society as "a thanksgiving for a safe voyage;" £11 had also been realised for the life-boat fund by an entertainment given in the Clovelly Life-boat House by four Cambridge University gentlemen, and others; £3 5s. 4d. had likewise been collected by Captain Hammond, after an amateur performance on board the Union steam ship *Cambrian* on her last voyage to England from the Cape.

A legacy of £50 had been left to the institution by the late S. S. Allen, Esq., of Finsbury. New life-boats had recently been forwarded by the society to Palling, Norfolk, and Portloe, Cornwall, where public demonstrations had taken place on the occasion of the arrival and fresh launch of the boats, the Earl of Shaftesbury assisting at the inauguration of the Palling new life-boat station. It was also decided to form a life-boat station at Moville, county Donegal, and to send a new life-boat to Greencastle, near Londonderry. Reports were read from the inspector and assistant inspector of life-boats to the institution on their recent visit to the coast, and the proceedings then terminated.

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## THE DIOPTRIC LIGHT.

[In reference to an article in the last number on the Floating Dioptric Light (page 456) we have received the following important information.]

Edinburgh, September 30th, 1870.

My dear Sir,—In the article on Floating Lights in the last *Nautical Magazine*, it is stated that the dioptric principle cannot be used for floating lights. It may be interesting to you to know that we have designed dioptric apparatus for floating lights which have proved quite successful. We have established six of these floating lights with dioptric apparatus at the Mouth of the Hooghly, and two in Japan.

They have been well reported of by the shipping, and thus:—

"LIGHTING OF THE HOOGHLY.—The Indian Government having consulted Messrs. Stevenson, civil engineers, of Edinburgh, as to the most efficient manner of lighting the light-ships on the Hooghly, they designed a lantern with dioptric apparatus; but as dioptric apparatus, though tried, had never been successfully employed for floating light-ships in exposed situations, they suggested that one lantern only should be constructed in the first instance as an experiment. The experiment has proved perfectly satisfactory: the light had been seen from 'aloft' at a distance of nineteen miles, and is reported by the officiating master attendant to the secretary to the Government of Bengal to be a 'most efficient one, and the best and most brilliant that has ever been exhibited from a light-vessel in these seas.' The application of dioptric apparatus to light-ships has thus been successfully carried out on the Indian seas; and the Indian Government have ordered the whole of the Hooghly light-ships, six in number, to be illuminated in a similar manner. One of the lanterns has been sent to the Paris Exhibition. The contractors for the lanterns were Messrs. Milne, of Edinburgh, and Messrs. Chance, of Birmingham, for the dioptric apparatus."

It is quite true that till 1865, when the Hooghly lights were designed, it was generally thought that the catoptric system was alone applicable. I remain, my dear Sir, very truly yours,

THOMAS STEVENSON.

*To the Editor of the Nautical Magazine.*

# Nautical Notices.

## Particulars of Lights Recently Established.

(Continued from page 554.)

| Name. | Place. | Position. | F. or R. | Ht. in Ft. | Dist seen Mls | [Remarks, etc. Bearings Magnetic.] |
|---|---|---|---|---|---|---|
| 92. Yeacos pt. | I. Trinidad | S.W. point | F. | 39 | 5 | Established 26th July, 1870. |
| 93. Flatholm | Bristol Chl. | ... ... ... | ... | ... | ... | Extension of red shade, see 93a. |
| Tower mark for Daunt's | Rock demolished | ... ... ... | ... | ... | ... | See Notice No. 93b. |
| Firth of Forth | ... ... ... | ... ... ... | ... | ... | ... | Buoyage. See also Notice 93c. |
| 94. Manila Bay Pasig light | ... ... ... | ... ... ... | ... | ... | ... | Temporary discontinuance. |
| 95. Lefchimo lt. | Corfu Is. | Mediter. | ... | ... | ... | Temporary discontinuance. |
| Rosetta | Egypt | ... ... ... | ... | ... | ... | Alterations postponed. |
| 96. Chesapeake Screw pile | For York Spit | ... ... ... | ... | ... | ... | Commenced instead of light-vessel See Notice No. 96. |
| 97. St. Lorenzo point | Madeira E. end | 32° 43·2′ N. 16° 39·5′ W. | ... | ... | ... | Established September, 1870. |
| 98. Seal Island Fog whistle | Nova Scotia | 43° 23·6′ N. 66° 0·9′ W. | ... | ... | ... | See Notice No. 98. |
| 99. Mangalore | Hindostan | 12° 51·0′ N. 74° 48·7′ E. | F. | 240 | 11 | Established 1st July, 1870. |
| 100. Ru Stoer | Scotland W. coast | Sutherland Strait | Int. | 195 | 19 | Est. 1st Nov., 1870. Light 60 sec., dark 30 sec. |
| 101. Monopoli port | Adriatic Italy | Castello Mole | F. | 26 | 6 | Established 14th Aug., 1870. |
| Lefchimo lt.v. | Re-est. | ... ... ... | ... | ... | ... | Re-established 2nd Sept., 1870. |
| 102. Celebes Macassar S. | Near Losari Mon. | *See Notice 102* | F. | 39 | 8 | Established 1st Oct., 1870. Lelij Light-vessel discontinued. |
| 103. Goodwin Knoll B. | Colour will be | Black | ... | ... | ... | On 1st Nov., 1870. |
| 104. Pakefield Gat. depth | decreased | to 11 feet | | | | |
| Maplin Sand extended | South end | to be marked | ... | ... | ... | by an additional can buoy 4 cables off. |
| 105. Bratholm Islet | Norway nr. Ronglevar | 60° 18′ N. 4° 49′ E. | F. | 53 | 10 | Est. 6th Sept., 1870. See Notice 105. To be lighted between 15th July and fol. 15th May. |
| Hjertnesstrand | ditto. E. side | 61° 59′ N. 5° 10′ E. | F. | 58 | 10 | Est. ditto |
| 106. Wolf Trap Shoal | Virginia, U.S. | Screw pile Light | F. | 36 | 11 | Est. 1st Oct., 1870. Flash every 30 secs. See Notice No. 106. |
| 107. Pulo Lepar | Macclesfield Channel | Java Sea | ... | 39 | 8 | Established about October, 1870. |
| 108. Coquet lt. | Alteration | ... ... ... | ... | ... | ... | See Notice No. 108a. |
| Milford Haven | Gt. Castle Head | Two Lights | F. | ... | ... | Est. 1st Dec., 1870. See No. 108b. |
| 109. Windau R. Courland | A green and a red lt. | Two Lights | F. | ... | 3 to 4 | Established —, 1870. |
| Munke Grounds Beacon | Position altered | ... ... ... | ... | ... | ... | See Notice No. 109. |
| 110. Coast of China | See table in | page 608 | | | | |
| 111. Skovs hd. harbour | Baltic Snd. | S. breakwater new | F. | 13 | ... | Est. 1st Aug. to 1st Jan. Red. |
| Floating Beacons | Off Romsoe and in Kattegat | See No. 111 | ... | ... | ... | On the Navern Shoal. |
| 112. Perim Is. | Red Sea | St. of Bab-el-Mandeb | ... | ... | ... | See Notice No. 112. |

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

No. 93*a*.—ENGLAND—BRISTOL CHANNEL.—*Extension of Red Shade in Flatholm Lighthouse.*—In order to facilitate the navigation to and from Penarth roads, the *red* shade exhibited from Flatholm lighthouse and cutting West Cardiff buoy, will be extended to the westward so as to cut the Ranie spit buoy, on a bearing of N. by W. ½ W. from the said lighthouse. The alteration will be effected on or about the first of December next.

93*b*.—IRELAND—SOUTH COAST.—*Demolition of Prince Rupert's Tower.*—The War Office authorities having given Notice that the demolition of Prince Rupert's tower, in Carlisle fort, at the entrance of Cork harbour is being proceeded with, mariners are cautioned that the said tower will no longer be available as a clearing mark for Daunt's rock.

93*c*.—SCOTLAND—FIRTH OF FORTH.—*Alteration in Buoyage.*—Information has been received from the Commissioners of Northern lighthouses that the following alterations in the buoyage of the Firth of Forth have been effected:—

*West Gurnet Buoy*, West of Inchkeith, from red and white chequered, to red and white striped vertically.

*East Gurnet Buoy*, West of Inchkeith, from red and white chequered, to black and white striped vertically.

*Pallas Buoy*, West of Inchkeith, from black and white striped horizontally, to black and red chequered.

*Inch-Brake Buoy*, off Kincardine, from black and white chequered, to black and red chequered.

[*All bearings are Magnetic. Variation Penarth Roads* 21° 55′ *W. in* 1870.]

No. 96.—*Intended Lighthouses in Chesapeake Bay.*—The United States Government has given Notice that the erection of a screw-pile lighthouse, in place of the light-vessel now marking York spit shoal off the mouth of York river, Chesapeake bay, is about to be commenced. It will stand within two cables of the extreme eastern edge of the shoal, in twelve feet at low water, a quarter of a mile west of York spit light-vessel.

Vessels are cautioned to keep at least a quarter of a mile on the eastern side of the works, whose position will be indicated by a light-vessel close to its eastern side, showing a *fixed red* light, to distinguish it from York spit light-vessel, which shows a *fixed* white light.

The temporary light-vessel lately marking the position of Wolf Trap screw-pile lighthouse in course of erection, having been moved as above to mark the York spit lighthouse, the former will hereafter be indicated by a *red* light suspended over the works.

No. 98.—NOVA SCOTIA—SEAL ISLAND.—*Steam Fog-whistle.*—The Government of the Dominion of Canada has given Notice that a steam fog-whistle has been erected in close proximity to the lighthouse on Seal island, off the south-west coast of Nova Scotia, in lat. 43° 23′ 34″ N., long. 66° 0′ 52″ West of Greenwich.

During thick weather, fogs, and snow-storms, the whistle will be sounded in each minute as follows:—First a blast of *five seconds*, then an interval of *five seconds*, followed by a second blast of *five seconds*, after which an interval of *forty-five seconds* to complete the minute before the whistle is again sounded.

The whistle may be expected to be heard from the following distances:—In calm or moderate weather fifteen miles. In stormy weather five to eight miles. Against the wind five to eight miles. With the wind twenty to twenty-five miles.

No. 102.—ISLAND OF CELEBES—MACASSAR.—*Substitution of Light on Shore for Great Lelij Light-vessel.*—The Batavian Government has given Notice, that on and after the 1st October, 1870, the *fixed red* light hitherto shown from Great Lelij light-vessel, near the town of Macassar, will be discontinued; and that a light will be established on the adjacent mainland of Celebes, about four and a half cables southward of Losari Monument, that will be a *fixed* light illuminating in a seaward direction an arc of 180°, divided into three sections. Of these the central one measuring 30° shows a *red* light, and the others, each of 75°, a white light.

From the lighthouse, the beacon on Pienjing shoal bears S. 67° 30′ W., and the beacon on south end of Great Lelij shoal N. 65° 30′ W.; the red sector of light being about midway between these beacons.

*Directions.*—The new light will serve, in conjunction with the Harbour light at Macassar, to render Macassar roads easy of access from the south and south-west. For this purpose, having entered the red sector of light, steer for the light on an easterly bearing, until Macassar harbour light bears N.E. by N. when steer for it, taking care on approaching the latter light, to alter course more to the northward in order to enter the roads.

[*All bearings are Magnetic. Variation* 1½° *Easterly in* 1870.]

No. 103.—ENGLAND.—*Goodwin Knoll Buoy.*—With reference to this buoy, mariners are reminded that it is intended for guidance in the navigation of the Gull stream; and that it is not advisable to pass between it and the North Sand Head light-vessel.

No. 105.—Illuminating an arc from seaward between the bearings of east round by north and west to south; but in order to mark the southern channel entrance a *red* sector of light will be seen from seaward between the bearings of N. ¾ E. and N.N.E.

No. 106.—From the lighthouse, Stringray Point lighthouse bears N. by W. ¾ W. about 10¾ miles, and New Point Comfort lighthouse S.W. ½ S.

*Directions.*—Vessels drawing over 25 feet water should not approach the lighthouse on the eastern side nearer than half a mile. Vessels drawing not more than 18 feet water may approach the lighthouse on the north and south sides within 1½ miles; and those drawing over 6 feet should not attempt to pass between the lighthouse and the main land.

[*All Bearings are Magnetic. Variation* 3° 5′ *West in* 1870.]

No. 107.—JAVA SEA, MACCLESFIELD CHANNEL.—*Light on Pulo Lepar.*—The Government of Java has given notice, that about the beginning of Octoder, 1870, a newly established white light of the sixth order would be exhibited from Tanjong Laboc, the eastern point of Pulo Lepar, Macclesfield Channel. The light, which is visible from seaward in every direction, is exhibited from an elevation of 39 feet above the level of high water, and should be seen in clear weather from a distance of 8 miles. The above light will, in conjunction with that exhibited from Jelaka Island, facilitate the navigation of Macclesfield Channel by night.

## No. 110.—China, East Coast.

The Marine Commissioners Office at Shanghai has given notice, that lighthouses are in the course of erection for the exhibition of the following lights on the East Coast of China.

| Name of Light. | Place. | Latitude. | Longitude. | Col. of Lt. | F., Fl., F. & Fl. | Miles seen | Ht. in ft. above H. W. | Ht. in ft. of Building | Probable Date of Exhibition. | Remarks. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | N. ° ′ ″ | E. ° ′ ″ | | | | | | | |
| Lamock | High Lamock Island | 23 15 0 | 117 17 30 | ... | F. | 23 | 315 | 100 | Jan., 1872 | |
| Chapel | Chapel Island | 24 10 15 | 118 13 30 | ... | F. | 22 | 230 | 45 | Jan., 1871 | Building. |
| Chikseu | Amoy | 24 23 20 | 118 8 0 | Red | F. | 12 | 80 | 30 | June, 1872 | |
| Turnabout | Turnabout Island | 25 26 0 | 119 58 30 | ... | F. | 22 | 240 | 30 | Jan., 1872 | |
| White Dogs | Middle Dog Island | 25 58 15 | 120 2 30 | ... | F. & fl. ½ min. | 22 | 233 | 45 | Jan., 1872 | Will be obscured from W.N.W. to W. ½ N., and from S.W. ½ S. to W. ½ S. |
| North Saddle | N.E. extremes of N. Saddle Island | 30 50 20 | 122 40 0 | ... | Rev. 1 m. | 23 | 265 | 25 | Sept., 1871 | |
| Sha-wei-Shan | Sha-wei-shan Island | 31 24 0 | 122 14 0 | ... | F. | 22 | 225 | 25 | Jan., 1871 | |
| Shantung | Shantung Promontory | 37 34 0 | 122 22 0 | ... | F. | 23 | 250 | 50 | Jan., 1872 | |
| Woosung* | Woosung | ... ... ... | ... ... ... | Red | F. | 12 | 50 | 40 | Mar., 1872 | Will show white down the entrance of Wangpoo River. |
| Square Island* | Yung River | 29 59 20 | 121 45 0 | ... | F. | 12 | 186 | ... | Mar., 1872 | |
| Tiger Island* | Ditto | 29 57 40 | 121 43 50 | Red | F. | 6 | 153 | ... | Mar., 1872 | |
| Newchang light-vessel | River Liau entrance | ... ... ... | ... ... ... | ... | F. | 11 | 40 | ... | April, 1871 | From 1st April to 1st Nov. |

* These Lights will replace those existing in same localities.

Also, that the following alterations will be made in existing lights :—

*Tung-sha*, at the entrance of the Yang-tze-Kiang, will, in December, 1870, be changed from a red revolving light to a *white* revolving light, of the 4th order, dioptric.

*Lang-shan*, Yang-tze-Kiang. A *fixed* white light, of 6th order, 35 feet above the sea and visible 6 miles, will be placed in position in January, 1871.

*Little Kintoan*, at entrance of Yang-tze-Kiang, will be discontinued on same date as the exhibition of Woosung light, viz., March, 1872.

No. 108*a*.—The *red* portion of the light seen in the direction of Hauxley Head will show *white* as far to the westward as N. by E. ½ E. Also, a light will be exhibited from the lower part of the tower, showing *white* from N.N.W. (being 2 cables outside Haxley buoy) to N. ½ W., from which last bearing to the land it will show *red* over the Bondicar Bush shoal. Also, the Hauxley Buoy will, in future, be coloured *red*.

No. 108*b*.—*Fixed Leading Lights on Great Castle Head*—will be established. On or about the 1st December, 1870, two leading lights, to facilitate the navigation of Milford Haven. Both lights will be *fixed* white lights. The upper light will be exhibited on a tower 112 feet above the level of high water springs, and the lower light will be exhibited from a window in the keeper's dwelling, 76 feet above high water springs. The two lights in line, bearing N.E. by E. ⅛ E., will lead between St. Ann's Head and Midchannel Rock.

No. 109.—*Munke Grounds Floating Beacon.*—The Danish Government has given notice, that the floating beacon on the Munke Grounds, North entrance of the Great Belt, has been moved E. ⅔ S. 1 1/10 miles, and now lies in 4½ fathoms, N.W. ¼ N., about 5 miles from Seiero lighthouse. A bank of stones, with 20 feet water on it, lies 150 yards W.N.W. from the beacon, and another bank with 18 feet on it, 400 yards N.W. from the 20 feet bank.

[*All Bearings are Magnetic. Variation* 15¼° *Westerly in* 1870.]

No. 111*a*.—*Floating Beacons on Shoals off Romsoe.*—That a floating beacon with a *white staff and broom* has been placed on Romsoe Klæpen in 4¾ fathoms; it lies W. by N. 1¾ miles from Romsoe lighthouse.

And another floating beacon with *white staff and red globe* has been placed close to the S.W. side of the shoal extending southward of the island, it lies in 3 fathoms S.W. by W. ⅛ W. 1⅛ miles from the lighthouse.

No. 111*b*.—*Beacon on the Naveren Shoal.*—Also, that a floating beacon *with red staff and two brooms* has been placed on the East side of the Naveren shoal in 5 fathoms; it lies S. by W. ½ W. 3 miles from Forness lighthouse.

[*All Bearings are Magnetic. Variation* 14½° *Westerly in* 1870.]

No. 112.—*Perim Island Light.*—A new light at Perim about to be set up. During change the stationary (fixed) light from the Aden light-ship will be substituted and placed on the flag staff at Perim about 150 yards due East of the old light. This temporary light will be erected on or about 26th October, and be visible from a distance of 10 miles.

A smaller light will be substituted on the Aden light-ship to replace that sent to Perim.

## The Court Martial on the Loss of H.M.S. Captain.

On Saturday, the 8th of October, the following result of the Court of Inquiry, on the loss of H.M. late ship *Captain*, was delivered.

The Court of Inquiry into the circumstances attending the loss of her Majesty's ship *Captain*, with five hundred of her officers and crew, off Cape Finisterre, on the morning of the 7th of September, reassembled this morning. Admiral Sir James Hope, G.C.B., presided; and the other officers forming the Court were Vice-Admiral Hastings R. Yelverton, Captains G. Hancock, C. B. Rice, H. Boys, C. H. May, J. E. Commerell, T. Brandreth, and J. G. Goodenough. Captain G. F. Blake, of the Royal Marine Light Infantry, barrister-at-law, officiated as Judge-Advocate. The Court was in deliberation the whole day, and shortly before seven in the evening the Court was reopened, and the Judge-Advocate read the judgment, which was to the following effect:

"The Court, having heard the statement of Mr. May and that of the remaining survivors, and such other evidence as they deemed necessary, and having deliberately weighed and considered the same, do find that her Majesty's ship *Captain* was capsized on the morning of the 7th of Septemper, 1870, by a pressure of sail, assisted by a heave of the sea, and that the sail carried at the time of her loss (regard being had to the force of the wind and the state of the sea) was insufficient to have endangered a ship endowed with a proper amount of stability. The Court further find that no blame is attributable to Mr. James May, gunner of the second class, and the survivors of the *Captain*, for her loss, and they do therefore fully acquit them of all blame. And the said Mr. James May and the other survivors of the *Captain* are hereby acquitted accordingly. The Court, before separating, find it their duty to record the conviction they entertain that the *Captain* was built in deference to public opinion expressed in Parliament and through other channels, and in opposition to the views and opinions of the Controller and his department; and that the evidence all tends to show that they generally disapproved of her construction. It further appearing that before the *Captain* was received from the contractors a grave departure from her original design had been committed, whereby her draught of water was increased about 2 ft., and her freeboard was diminished to a corresponding extent, and that her stability proved to be dangerously small, combined with an area of sail (under the circumstances) excessive. The Court deeply regret that if these facts were duly known and appreciated, they were not communicated to the officer in command of the ship, or, if, otherwise, that she was allowed to be employed in the ordinary service of the fleet before they had been sufficiently ascertained by calculation and experiment."

The gunner having been called to the President, the latter, in returning his sword, said—"Mr. May,—I am desired by the Court to avail myself of the present occasion—that of the returning of your

sword—to acquaint you that they are satisfied you did everything in your power, consistent with your duty, to save more of your shipmates, and that your conduct, and that of the survivors of the crew of the *Captain*, during the time they were under your command, reflects credit on yourselves and on the service to which you belong."

The Court was then dissolved.

We append to the foregoing, the following sensible and temperate remarks, which we find on this subject in the *Hants. Telegraph*, and with which in the main we fully agree. Whatever might have been the cause it is perfectly evident that the low freeboard was one of the principal causes which occasioned the loss of the *Captain*. What ship can be considered in a proper condition as a ship of war that carries her lee gunwale under water as it was when the Admiral made his remarks on it to Captain Coles. The ship herself was a huge mistake. No nautical man now is surprised at her capsising. Her great faults seemed to be topweight, from various causes, a very low freeboard (far too little),* and hence the extraordinary height of her centre of gravity; the consequences of all of which were her utter inability to recover herself on going over her angle of safety, and her ultimate capsising.

However, here is the opinion of the *Hants Telegraph*, an old established paper which has had a better opportunity than ourselves of forming it.

THE JUDGMENT OF THE COURT.—The judgment which the Court, appointed to inquire into the circumstances attending the loss of H.M.S. *Captain* has pronounced, is not likely to give much satisfaction, either to the public at large, who pay for the construction of our ships of war, or to the special portion of the public who trust their lives on board of them. Everyone saw that the Court was constituted to try a false issue, and that however long or short a time it might sit, its deliverance could be to a great extent anticipated. That Mr. May and the survivors would be acquitted was a foregone conclusion, but with regard to the supreme questions which are involved in the foundering of the *Captain*, we are almost as much in the dark at present as ever we were, and another inquiry will have to be held for the purpose of thoroughly overhauling the construction of the unfortunate vessel, of apportioning the responsibility attaching to her building and sailing, and of testing the principles on which the whole of our navy is designed.

We seem to be running dangerously near the wind when a superfluous mast, or a few yards more or less of canvas will capsize a ship and overwhelm five hundred of her crew; or when, as it may be, the safety of other vessels in a gale are only secured by the splitting of their sails. It is of importance to know whether the mathematical criteria which are employed to learn the stability of a ship are certain; whether we have ascertained all that it is possible to ascertain as to

* We know nothing of the distribution of her weights below.

the behaviour of iron vessels in certain conditions of wind and water; and whether, in short, it is not necessary to revise the rules that are laid down with regard to stability, flotation, displacement, and all the other properties belonging to the science of naval architecture. There must be something radically wrong when experts can hold such diametrically opposite opinions concerning the seaworthiness of a ship that one party shall declare her to be unapproachable, and another party that she was irrevocably doomed to perish!

What, again, is the worth of preliminary trials when captain and crew can, up to the very last moment, exhibit such unqualified confidence in the behaviour of their ship as to deem it unnecessary, even in a storm of unusual violence, to think the slightest precautions needful. The *Captain* was an exceptional vessel, and was built as an experiment. She was designed by a man who, though a practical sailor, was not a scientific man; she was built by a private firm, who not only performed their work without official assistance, but in the teeth of much official opposition; and she was permitted to go to sea ere the position of her centre of gravity had been positively determined. And yet the *Captain* was not only an innovation as to the height of her freeboard and the character of her hurricane deck, but she violated established precedents with respect to her armament and masting as well. Had she, under these circumstances, exhibited many defects on her first cruise it would not have been other than what was to be expected. Had she failed to equal the performances of the *Monarch*, and settled into a second place as a sea-going turret, public opinion would have pronounced the result very good for an experiment. But the country was not prepared to learn, in opposition to the strongly worded and repeated assurances of the Chief-Constructor that she was an expensive mistake, that Captain Coles's invention had surpassed all the ships of the fleet at a leap, and that she was the most formidable engine of war which the century, rich in the means of destruction, had produced. Hence the consternation which the news of her foundering caused was profound.

For the moment the feeling of astonishment was stronger than the feeling of sorrow for the dead or of commiseration for the bereaved. it was, indeed, hard to believe that a ship should all of a sudden, and without anything having been discovered to awaken the suspicions of those on board, sink from the highest pinnacle of success to the bottom of the sea; and that she should, in short, founder in line of battle, with all her sails set, and without so much as having had occasion to call her engines into requisition. Such being the case, it was quite natural that a powerful re-action should set in, not only against Captain Coles's principle but against the modifications of the principle as displayed in other ships. Experiments which had proved fallacious as regards the *Captain* could not be held to be invulnerable in other cases. Were the same results to follow the testing of bridges a reduction would immediately take place in the amount of railway travelling, and voices would be raised in favour of stage coaches just as arguments are now being heard in favour of a return to wooden walls.

One of the most remarkable circumstances connected with the sinking of the *Captain* is the general irresponsibility of all parties who had anything to do with her construction. Now that her fate is known everybody is anxious to wash their hands of her. The Admiralty authorities deny their responsibility because they did not originate the plans, while the Messrs. Laird very plausibly argue that the responsibility with them ceased, so far as the seaworthiness of the ship was concerned, the moment the Admiralty accepted the design. Pressed on the point, Mr. William Laird remarked that their Lordships reserved the right of approving the design submitted, and that, on the other hand, his firm only agreed to tender for the construction of the *Captain* on the condition that the plans were approved by the Admiralty.

Such, then, being the haze in which the question of responsibility is involved, the Court attempted to determine the point in a way that was ingenious without being satisfactory. They not only honourably acquitted Mr. May and his fellow prisoners, but, taking up an issue which was foreign to the strict scope of the inquiry, they also acquitted the Admiralty of all culpability in the matter. They state that the *Captain* was built in deference to public opinion, expressed in Parliament and through other channels, and in opposition to the views and opinions of the Controller and his department. Public opinion, therefore, which governs everything in this country, is responsible for the loss of the *Captain*. Taken literally, the judgment of the Court-martial would imply that a grave defect exists in the constitution of the country, and that there are certain subjects with respect to which the influence of public opinion can only prove mischievous.

But public opinion was not responsible for the fact that the *Captain* was over-masted, that her freeboard was two feet lower than intended, and that, being an experiment, she was permitted to sail before Captain Burgoyne could be informed as to the special weaknesses against which he ought to guard. He was in a manner mounted on a high-spirited and unbroken steed, in total ignorance of its special points and qualities. All that public opinion had to do in the matter was to authorise the testing of a unique principle in naval architecture; but it was never intended that this authorisation should relieve the controller's department of responsibility as to details. Safety at sea was the first thing to be seen to; efficiency as a belligerent was a question of secondary importance. If, therefore, after being completed it was the opinion of the proper authorities that the *Captain* failed in the first condition of seaworthiness, it was their duty to prevent her going to sea.

But the Controller did not carry his opposition to such an extent as to consider her dangerous, and Mr. Frederick Barnes, the assistant-constructor of the Navy, denies that she was ever regarded as being even a "ticklish" ship. It was reserved for Mr. Reed to anticipate her fate from the first. Were we disposed to put the construction upon his replies in answer to Captain Commerell which they would appear to bear, we should, considering his official position, regard him as far more to blame than "public opinion" for the terrible catas-

trophe which ensued. His prognostications of disaster, however, were nothing more than happy guesses founded upon causes essentially different from those which caused the loss of the ship. If he did say to Captain Burgoyne at Birkenhead, after an examination of the vessel, "I don't want to say any more against her, but I'm glad it's your fate and not mine to go to sea in her," he evidently afterwards discerned some reason for modifying his opinion, and was even prepared to behold in the *success*, instead of the *failure* of the *Captain*, a justification of his previous views as to her construction. In his reply to Captain Sherard Osborne he endeavours to show that her performances did not refute his estimate of her seaworthiness. "I state with the utmost confidence," he remarks, "that the *Captain* proves precisely the contrary, for she is in flat and open contradiction of all the crude ideas and early contentions of Captain Coles, and is a vindication of what the Admiralty have always acted upon!" "She is," he adds, "a 4,200-ton deep draught frigate, or twice the size which Captain Coles at first wished her to be, and the very size which I vainly advised him to adopt years before." Defects she certainly had, but these did not detract from her qualifications as a seagoing turret, and Mr. Reed was evidently inclined to oppose her low freeboard not because it diminished her stability, but because it rendered her more liable to the plunging fire of an enemy!

The evidence that was revealed at the recent Court-martial displayed the utter want of defined principle on which our ships of war are constructed, and we are gratified to hear that Mr. Childers is not likely to let the matter rest where it now does, but that he is determined to institute a thorough investigation into the subjects which were not inquired into on board the *Duke of Wellington*.

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## A BIT OF A SAILOR'S MIND.—*Bit the Third.*

SIR,—We hear much twaddle about the amalgamation or combination of the Royal and Merchant Services, through the Naval Reserve; but a late Court Martial shews that the crime of desertion is differently treated in different parts. One Royal Navy deserter gets two years' hard labour and six days' solitary confinement out of each month for having "*stuck to*" some mess-money; and another gets eighteen months for a simple case of desertion.

Now, mark the difference—

A Merchant steamer is about to leave London; the crew join her in the evening, and take French leave; they go on shore, and as the vessel sails at *day dawn*, they get left behind, and some landsman of a magistrate is very severe on the brokers for not paying the advances, as if they had proceeded according to agreement, and on the captain for not sorting out their clothes and leaving them behind.

In a similar case at an outport, the magistrate actually apologised to the men, because they had been looked up as deserters; they had

cashed their notes, and spent the proceeds and of course never joined their ship.

A sailor agrees by signing articles to be *on board* by a certain time; but he scarcely ever keeps his appointment. Much mischief would be avoided if the crew, and not lumpers and riggers had prepared the ship for sea, instead of the crew hanging about in the neighbouring grog shops as they do, a few going on board occasionally, and one says to another, "she won't go this tide." And this is enough, it appears, for a landsman magistrate to rule, that they *were told* the vessel was not going to sail! Even at the point of leaving, the officers assisted by the boys have to pass the tow rope, and see the ship's company half-drunk on the pier, larking with women, etc. This is the state of things that has come on us since the Board of Trade undertook the crimping business.

The punishment by the Articles of War for striking a superior officer is death; but by Merchant Articles it is a fine of two days' pay, which rather encourages the offence than otherwise!

Most of the time that the mates are thus left single handed, the captain is probably at the Custom House, simply to declare to his signature to what, in most cases, he has never read, and a number of documents that no one ever will read again, such a waste of paper, sealing wax, etc. One has to wait while an official ties two lots of papers together, which he does with a granny's knot!!! then fumbles for sealing wax, etc. Surely paper fasteners with the crown on them would save time, life, and property, for the captain who is wearily waiting has to be a night on the bridge afterwards. This has been represented by the Liverpool ship owners without effect. The captain's signature might surely be compared with other documents, for he ought not to have to travel miles away on such a fool's errand; he is much more wanted on board, if only to protect his officers in the fight that usually takes place.

An admiral writes to the *Standard*, saying that the unfortunate *Captain's* topsail yards were on the cap! If such were the case, why was the last order given to let go topsail halliards. Captain Burgoyne died doing his duty, and it is I hope no disrespect to his memory for officers to ask—

1st. Were the lower yards of the *Captain* fitted with old fashioned rope trusses, as in men-of-war generally?

2nd. Was the slack of the topsail lifts taken in? This is what we never dare do in a merchant ship, as the yards will not come down, when the ship is lying over, like a cotton drogher say!

3rd. Were there rope parrels to the topsail yards without rolling chocks, as if so, the yards being very sharp up when the squall struck her must have almost gone fore and aft, and thus helped to capsize her?

The dangers of the sea have not been lessened by the adoption of iron ships. Water too is very bad ballast, when the tanks are only half full, this has been known to happen accidentally by *three way* cocks acting as bilge, tank, and sea injections.

Capsizing is not such a very uncommon occurrence, witness the number of ships absent, bottom up. I can remember a man-of-war upsetting in a Line squall, and several merchantmen also. Ships when dangerously crank will not, in fact they cannot *afford*, to roll, so get the name of easy ships. Was this the case with the *Captain?* I have always kept the upper yards well in in stormy weather, and the head yards also will bear being in, *i.e.*, more square, than the after ones even on a wind. It is a common mistake to think at sea to brace

TOO SHARP UP.

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EXPERIMENTS WITH ROGERS'S LIFE-SAVING PROJECTILE.—We hear from Mr. Rogers that some further experiments have been made with his life-saving projectile off the mouth of the Mersey. When thrown to a vessel in distress the projectile used is a cone; when thrown for the purpose of getting a purchase to haul a boat out from the beach, the projectile has a folding anchor at the head, the arms of which expand and bite the ground directly there is a pull upon their centre by the line through the hollow of the projectile carried by the latter when shot by the projecting mortar. The experiments made were with the cone. The steam-tender *Alert*, which had been lent by the Mersey Docks and Harbour Board for the purpose, started from the Prince's Stage and proceeded down the Crosby Channel, and off the Great Burbo Bank. Three shots were fired across the wind. The mortar used was a 3½ inch, the projectile weighing twelve pounds. With a charge of only two ounces of powder, the mortar was fired at an extreme elevation—upwards of 45°—for the purpose of showing more plainly than by a horizontal fire, which would carry the projectile to a distance, the free action of the rove line. The cone shot up to a height of about 150 yards, and fell 80 yards from the steamer. It was then hauled in, and a second shot fired at a lower elevation, the projectile carrying a one-inch rove line 200 yards with beautiful accuracy. It was hauled in a second time, and a very light line with about 480 yards of slack attached. The mortar was fired a third time, and the projectile flew in a straight line upwards of 400 yards. Unfortunately one of the boxes containing one coil of the rove line had been placed rather too near the stays on the port side, and as the line flew out, a loop or kink of the coil caught on the sheer-pole of the rigging, and the line snapped. Thus, when the projectile dropped, the short end of the line unrove from the block which fits in the heel of the cone or projectile, and the flood-tide having covered the bank, the trace of the cone was lost, and it could not be recovered. Mr. Rogers having run short of powder, made no further experiment, but all on board the *Alert* expressed their admiration of his apparatus.

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THE

# NAUTICAL MAGAZINE

AND

# NAVAL CHRONICLE.

DECEMBER, 1870.

## A Glance at Newfoundland.—*Cape Breton and Arcadia.*

After two or three months of an existence among fishermen, one can understand the enthusiasm which is felt on the announcement of a visit to one of the establishments of the island. These centres of civilization, consisting unhappily but of three, are two of them English and one French, the last undoubtedly not the most flourishing. This is the islet or rather the rock of St. Pierre Miquelon, and the only point of these seas, French as they are, where by treaty they are enabled to hoist their flag. The town is built round a small bay in the form of an amphitheatre, called Barachois, and is the rendezvous of the small craft in the winter that do not return to France. The buildings devoted to the preparation of fish line the shore, each of them having their own graves disguised as gardens. About half a dozen streets cross the houses behind them, where shops and low public houses abound, and beyond them a range of hills covered with a generation of young trees a foot or two above the ground. In fact, a very few years ago, this juvenile forest was not in existence, when happily the marine department adopted the happy thought of sending every year to Newfoundland a portion of their ships of war for two months from the West Indies, with a view to prevent the ill effects of the tropical winter.

In order that the crews might profit by the change of climate, they were employed in the little islet of St. Pierre in forming roads, and hence those openings into the interior of Newfoundland, the Cleopatra road, the Bellona route, and others, the names of different ships which have successively lent their seamen for the work; and by way of keeping pace in useful works, the local administration can boast a fair

system of quays and jetties round the harbour. In fact, in 1867, these useful embellishments were completed, costing more than they should have done on account of an abominable fire which obliged the inhabitants to rebuild their houses less crowded together and less exposed to fire. Thus it has been, that St. Pierre has gradually assumed the appearance of a commercial port, and this rock, condemned by nature to perfect sterility, remains nothing more than the annual resort of their ships.

The most favourable time for seeing St. Pierre is towards the end of May, when the fleet of the large fishing craft are about to land the produce of their first fishing, and at the same time, to purchase caplin for bait from the vessels from England for their second fishery. At that time for several weeks the roadstead is crowded with vessels, many arriving and as many departing continually, the streets of the town full of sailors roaming from one public-house to another in a merry mood in their large fishermen's boots. Of course, all the houses are alive preparing for the various voyages projected, to Boston, to the Antilles, Marseilles, and isle Reunion. One curious particular worthy of mention is, that Boston has the best fish, the rest, however inferior, being considered quite good enough for our colonies where the high tariff controls their sale. Whatever may be the consequence of this inattention to the protection system, and artificial as the prosperity of St. Pierre may seem, commerce returns there every year at the rate of twelve to thirteen millions of francs, with a tendency to increase: the exportation of dried cod amounts as a mean to twelve kilogrammes a year. It was with no bad intention that this artificial prosperity was raised, for no one is ignorant that the fisheries of Newfoundland rest mainly on a system of insurance renewed for ten years in 1860. These insurances are of two kinds; one of fifty francs per man as fisherman with *secherie*, and thirty francs for the fish without *secherie*, the others from twenty to twelve francs the metric quintal of fish according to the destination of the produce. The charge to the state is trifling, not over two millions of francs, and thanks to this slender sacrifice a nursery is secured of about 10,000 first-rate seamen. Far then from there being any reason for complaining against this small expense on the ground of the liberty of commerce, it is evidently to their interest to maintain it, and it might be still more so to increase it, since it appears that the maritime population is on the decrease. But we will conclude our discussion by observing that the administration of this microscopic colony scarcely costs 300,000 francs, both in personelle and materielle. It is the most economical of their colonial establishments beyond the seas, and most assuredly it is not the least useful.

In spite of these merits, St. Pierre de Miquelon is something like the mare of Ariosto. We do not propose to draw any comparison between this islet and St. John's, the capital of the English colony, containing a population of 30,000, where all attractions of modern society are to be found, a government, parliament, consuls, foreign consuls, courts of justice, churches, Catholic and Protestant, of all denominations, and all the attractions of society, streets lighted with

gas, newspapers, banks, and even a Bethlehem hospital. The town is surrounded by good roads, diversified with those handsome cottages so well understood by the English. Some farms also are seen here and there as if to remind people that they are in a part of the world most celebrated for agriculture, notwithstanding that the appearance of the fields does not convey a very encouraging idea of the fertility of the soil. One realises in a word, civilized life, and enjoys by contrast all that one has been deprived of during the months of exile when the fishing is going forward. It is not that St. John's has nothing to set off against the precious fishery: quite the contrary, but at the least, the town has attained that degree of prosperity and importance, where she is not obliged to display at her door the abominable preparation of fish by which she thrives. The time passed by us at anchor passes then most agreeably, and this kind of life is found to be much the same in all parts of the world where the English have established themselves. The interior of their houses has everywhere the same tone, the same daily routine holds good, the same family life, the same important stereotyped hour of dining holds its place in this outlandish part, especially when the visit of a foreigner admits, after passing the wine, to finish the evening with a quadrille. Colonial society with an air of confidence, say to those whom they consider should accept their accommodating manners, it is quite certain that in presence of a society so studiously high in the aristocratic scale in Great Britain, the Browns, the Joneses, and the Smiths, which abound in the colonial world, would perhaps find themselves somewhat out of their element in the saloons of the West end of London. But the foreigner who has nothing to do but to look about and enjoy himself without after thought, this cordial hospitality, he will not find equalled either in London or any town of England.

Thanks to the fertile nature of the provinces of Plaisance and Avalon, the richest of the whole island, the population of the English portion amounts to 130,000 inhabitants, very superior in every respect to the two or three thousand scattered residents along the French coast, of which the greater part subsist on the abundant cod fish. The commercial revenue there is about seventy-five million of francs. The fishing pursued by the English is everywhere confined to their own shores, and none of their craft ever attempt to try their fortune on the banks by the side of ours as they have the right to. In return we do not interfere with another fishery in which their best sailors are occupied every year, and which although it does not last more than five weeks adds no small sum to their earnings. I now allude to the seal fishery in the months of March and April. Notwithstanding the harbours are still covered with ice and the fishermen cannot get out to sea, excepting through channels cut out by them. In fact it requires quick management. It is in February that the immense fields of ice, which come down from the bay between Labrador and Greenland drift to the north-east coast of Newfoundland, and it is at the end of this month that the females produce their young on this ice. It is necessary therefore to commence their attacks on them before the

little ones are sufficiently large to make their escape. But in the month of March the fishermen have not to pursue their game far from land to find this drift ice, although the icebergs float down far outside of them. These last however they avoid, and the construction of their vessels employed on this fishery leaves nothing to fear from the generality of the ice they meet with.

But the fishery is most barbarous and cruel. The seals are generally found in crowds of families, while the little ones are too small to get away. Each of the fishermen is armed with an iron bound club about five or six feet long, and a knife. When the mothers see them approach they retreat under the ice; then frightened by the cries of their young they reappear on the ice to defend them, and often expose themselves to be killed. A single blow on the nose is sufficient to kill the poor seal, or at any rate to stun him, and he is then skinned and cut up on the spot, half alive and dead so as to take nothing on board but the skin and fat adhering to it. This part of the business is the most laborious as well as the most dangerous. The vessel is often a long distance away. As soon as she was left her course has been changed, and it becomes necessary to drag the hunter's spoils far over broken and rugged ice of all kinds. Sometimes the ice breaks and the hunter disappears. Sometimes he is overtaken by a fog, or a snowstorm through which nothing can be seen, and the vessel may have been drifted in a different direction to that taken by the ice, so that the poor hunter has a great chance of being overcome by the effects of hunger, cold, or fatigue. Hence scarcely a year passes without some misfortune of this kind, and yet the next season will produce even a larger fleet of vessels on the same errand, and now they number 200 vessels manned by 10,000 men, for the occasional chances of good luck which they have, are as tempting as the gold diggings of California. A vessel thus employed will kill some 3,000 seals in one voyage, and in a few hours will realise as much almost as £2,000. But the month of May soon puts an end to this lucrative campaign, so that nothing prevents the same men from following in the same year the seal hunting as well as the cod fishery. As to French fishermen they are compelled to confine themselves to the latter; they are prevented by treaty from wintering at Newfoundland, which would enable them to attend the seal hunting with the English in March.

In the usual routine of duty assigned to the Newfoundland ships, Sydney is the only place to which one may escape from the cod fishery, and deserves special consideration on this account if the merits of the place did not justify it. It is impossible not to be won by the charming country presented to the visitor on arrival here, impressed with the monotonous scenery of the fishery of the French coast. One beholds the most beautiful park-like scenery, instead of a picture of chaos of the most desolate kind in nature. Sydney in fact is not on the great island of Newfoundland. Like an advanced outpost of America the port is formed by one extensive arm of the sea, cut out of the most eastern promontory of the island of Cape Breton. On the right hand of the entrance, huge red brick chimneys rise high in the skies forming

bouquets of smoke! But they mark the riches of the mine which makes the fortune of the Golace. The mineral is obtained with so much ease and at so small an expense, that it can be supplied at a cost of less than eleven shillings per ton. Here is the modern Sydney, called Sydney mines, which although of recent origin is daily increasing in a manner to shew that it will not be long, before it surpasses the earlier Sydney situated on the opposite side of the harbour some miles within it. Although this latter boasts of the lofty appellation of Sydney-ville it is not properly speaking a village of moderate pretensions, but so fresh, so pretty, so nicely shaded by the foliage of large trees, in a word so thoroughly English, that it was impossible not to prefer this quiet retreat to the noisy place of which the mines are the cause. Thus our vessels periodically visit Sydney for a few days of rest, after filling up their coals and completing with provisions. The officers already familiar with the country have only to renew their acquaintances of former years, and their arrival rarely fails to serve as a pretext for the renewal of the hospitable entertainments given by various families of the inhabitants. Nevertheless when it became our turn in 1867 to visit Sydney, the hospitable society which we had previously found there were not in that thoroughly satisfactory condition of former years, and the usual harmony of Cape Breton was seriously disturbed by political matters, which for the first time we found had divided this little branch of society into two parties.

The original cause of this state of things is worthy of attention as forming an episode not well known and not a little instructive. Nothing is more common in France than to cry up English doctrine in reference to colonial matters, and latterly when the federation of all the North American provinces of Great Britain was entertained, we can remember the general approval of the measure by the French press. Our journals in fact all echoed back the views of the English. The *Times* gave the signal and every other paper followed suit. The enthusiasm of the colonies of course followed. Many persons, and among them the best of society, could only see a political shuffle, although the original project materially enough designed, would be altogether upset, so to speak, as soon as done as to the real advantage of those interested. It was in fact proposed at first to unite in one confederation the three maritime provinces of Nova Scotia, New Brunswick, and Prince Edward Island, and Newfoundland might be afterwards joined with them. Commercial interests, immediate neighbourhood, military security, everything was in favour of this union, which in fact was to the real advantage of each party.

The legislative assemblies of these states discussed in 1864 the time for bringing it forward, all being averse to delay, and the first of September of the same year was fixed for the union in Prince Edward Island by delegates nominated by the three states. Unfortunately Canada had been omitted in this compact, and a glance at the map made it evident that each of them had had the same motive considering the history of this colony in past years. Certainly representative government never had such deplorable results as the English, who

would at all hazards acclimatize Canada in every part of the globe where St. George's Cross is seen, that would give the small islets, St. Christopher's, for example, of the Antille, the same form of government as Australia. Faith is a good thing, but it would be too good to be always right.

Far from saving Canada in this case, a process has been perpetuated of forming one of the strangest acts which a parliament of any country ever effected. The union of Upper and Lower Canada completed in 1841, has served no other purpose than to make more evident the diversity of interests of the two provinces, who would join their neighbours after never having endeavoured to understand each other. On one hand there is the majority of French Canadians with a minority of English; on the other hand the radical party and the Americans of Upper Canada as well as a small minority of French. The strength of the two parties at the time we speak of, were so evenly balanced in parliament, that all government was at an end in the country.

We need not follow the author of this paper into his reasonings on this subject: our desire is to see more of what his refined observation leads him to note of the country in which he is placed. Such were the subjects which he says occupied the minds of the people of Sydney, at the time of his visit, a place which he says was looked on by him as more belonging to the French. No wonder this idea was harboured in his mind when he says, only a few leagues from Sydney that the ruins of Louisberg are to be seen, the centre of all their old possessions. The foundation of Louisberg was the result of the new state of things brought about by the treaty of Utrecht, and it had risen in the later years of the great king whose name it bore. For twenty-five years millions of money had been expended in fortifying this outwork of Arcadia. Its walls of hewn stone thirty-six feet high, had six bastions and eight batteries of above a league in extent. The roads protected by a couple of batteries, with a light-house, and provided with a natural basin for the repair of shipping were sufficient for all the purposes of the French fleet in those seas. The city itself was provided amply with storehouses and military establishments of all kinds: in fact nothing appeared to have been neglected to make Louisberg the key of the St. Lawrence, and the imposing advanced post of New French Canada. But the unfortunate city originating among the last reverses of the reign of Louis, had to succumb to the influence of its unfortunate origin, and its history signalises nothing but a series of misfortunes in the maritime history of France. It was first in 1745 that a sort of Protestant crusade, got up at Boston by the Puritans of New England, was directed against the Papists of Louisberg. Four millions of fanatics were enrolled under the command of a fish merchant named Pepperel. George Whitfield, one of the most ardent followers of the celebrated Wesley, gave them a flag with the motto, "Nil desperandum, Christo duce." The place was invested on the 30th of May, and although weakly defended by an insufficient garrison might have held out if a squadron of English

ships, under the orders of Commodore Warren, had not come to assist the Bostonians. The captain of the *Vigilant*, 74, which had come to succour the place with provisions and men, preceded the capitulation of the place on the 17th of June, after a siege of fifty days. Besides the garrison which had secured the honours of war more than 4,000 inhabitants were removed to France by the conquerors.

In England the joy on this occasion was so great that Pepperel and Warren were made baronets, and Boston had not sufficient number of ships to salute the return of the saints who had overturned the power of popery in North America.

However, the French did not despair even with this loss, and on the 22nd of June in the following year, the Duke d' Anville, of unhappy memory, left France with ten ships of the line, some frigates, and a convoy of fifty-three ships to recover Louisberg. But never was there so unfortunate an expedition. The passage from the French coast to Newfoundland was not even in those days much above a fortnight, but D' Anville's fleet, after being sixty-four days at sea, was yet some three hundred leagues from Louisberg. But they made land on the 10th of September, when on the 13th the fleet was dispersed by a gale of wind, and it was not until the 27th, that is ninety-five days, that the greater part of the fleet were collected in the unsettled roadstead of Chebucto, now known as Halifax, the capital of Nova Scotia. Such a navigation could only be found in the voyages of Ulysses. But however, the end soon came. On the 27th September, the Duke d' Anville, in the midst of his trouble was attacked by apoplexy, on board the *Northumberland*, and a small island is pointed out in the roadstead of Halifax as the place of his interment. By right of seniority the command devolved on the commander of the *Trident*, but the squadron was doomed to misfortune, for the new commander-in-chief, under the weight of responsibility in the height of a fever, terminated his own existence but two days after the death of the Duke d' Anville. This sad succession of events changed the destiny of the squadron, which after a vain attack on Annapolis instead of Louisberg, returned to Brest. But the same officer conducted himself gloriously in the month of May of the following year, in an action with Anson off Cape Finisterre.

Louisberg however, then remained but three years in the hands of the English, for it was restored to France in 1748, by the treaty of Aix-la-Chapelle. Still the days of Louisberg were numbered. On the 28th of May, 1758, a formidable fleet was fitted out at Halifax under the command of Admiral Boscawen, and anchored on the 2nd of June in Gabbarus bay, about seven miles west of Louisberg. It was composed of twenty-three ships of the line and eighteen frigates, besides a large convoy carrying 15,000 troops. General Amherst was the commander-in-chief of the force, but the veritable chief of the army was the celebrated Wolff, yet but little known, and whose part in this expedition in which he commenced his short but glorious career, marked him for the penetrating eye of the prime minister of England, Pitt. It was this minister in fact who recalled him to England after

the capture of the place, and entrusted the important command of Canada to his care, to the general surprise, where he so soon afterwards immortalised himself.

The French fortress of Louisberg contained but 2,500 regular troops, and three hundred militia recruited among the people. They made however a gallant resistance under the encouraging example of the Chevalier Drucourt capitain de Vaissean, who with his devoted wife braved the siege on the very ramparts of the place. But after two months Louisberg was no longer tenable through breaches in the fortifications, and on the 26th of July its capitulation was duly signed. At this time, however, the English taught by experience, burnt and destroyed everything and left the place a mass of ruins, and two years were occupied in this work of destruction. The population was dispersed and the place again became a desert. Traces here and there of ditches, broken down walls towards the sea, with remains of the glasis towards the interior, some fragments of large magazines under which the wandering cattle are feeding, and even when the sea is still some remnants of vessels which fishermen pretend they can see on the bottom, are all that are left to-day of Louisberg!

Traces still are found of French occupation in the country, families of Arcadians scattered about but sufficiently near to each other to keep up relationship. About fifteen miles from Sydney is a province of them, which has preserved its name as a French village, although there is nothing there which can be considered a village. The church which serves as the centre of this knot of people stands on the slope of a hill commanding a valley. A visit was paid to this village, and among a few persons met with conversation went on in French and English, which turned rather on dissatisfaction with the curé. One party thought it hard they should have to pay five pounds a year for spiritual services too sparingly given, the said curé living at Sydney: others said that for this price they could see him once a month on his route. Such was the singular contest of the two parties equally strong; of the old French peasant prompted by his feelings and his church, all of them were exclaiming on the dearness of the curé, yet none of them for an instant would refuse him his tribute.

In a room hard by, a pretty young Irish girl, married to a Frenchman, was teaching a collection of children their Catechism. What is your name was enquired of one of them, Gantoret, answered the child, with its little voice. In the mixture of language, even the baptismal name becomes English, the family name remaining French. This little Arcadian centre contains about five or six hundred souls, and in spite of its French name, the county of Cape Breton is that in the island which reckons the least number of Arcadians, and this, although the island itself includes at present the most important as well as the most compact group of this scattered race. Thus the northern part of the county of Inverness, as well as in the isle of Cape Breton, is scarcely peopled but by them, as well as to the south of the county of Richmond, where the village of Arishat is the most considerable, and where nearly all the inhabitants to the number of 6,000, are Arcadians. The total

population of Cape Breton consists of 60,000 souls, of which 15,000 are Arcadians. Thus, it is a sixth part of the whole that remains of this interesting race.

The vessels of the Newfoundland division must make their voyage to France from Sydney by touching at St. Pierre Miquelon. Our stay was longer than usual, for the poor islet had recently suffered from fire, which on the 16th and 17th of September, 1867, had laid 250 houses in ashes. In 1865, the centre of the little city had been destroyed by fire, and the last had destroyed the houses which had then been rebuilt, but which had been far more disastrous, amounting to about two millions of francs, a considerable sum for its small population. Leaving St. Pierre after taking them all the supplies to be obtained at Sydney, after a passage of eleven days, the roadstead of l'Orient was entered, and the traditional salute fired to the lady of Armor, a salute never omitted by the sailors of Breton: and thus, a passage of six days finished a campaign of six months. This said Armor is a small village of Breton, situated on the shore near l'Orient, and by an ancient custom every ship salutes the patroness virgin with three discharges of artillery, as well at the end of the voyage as at the beginning, on her departure from port. It has been observed, that the *Semillante* so miserably wrecked in the Bonifacio Strait during the Crimean war, had neglected this tradition on leaving l'Orient. At the same place a brig was wrecked in 1849. The chronicles of the place observe that these two are the only vessels which, whether unintentionally or not, had thus neglected to shew their respect to Notre Dame de l'Amor. Let John Bull keep an eye on his Friday sailing after this.

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## Hints on Navigating the Spanish Coast—Gibraltar.

Making the rock.—Making the rock is of the first importance when approaching it from the eastward. Hence, its appearance when seen from the eastward should be well studied; those from the westward being of less consequence from its not being a landfall in that direction. It presents to the eastward asperities or sharp points and precipices, which descend from peaks lying north and south. Its northern end is as if cut vertically, its summit in this direction rounded, with fissures in the centre, descending towards the south in steps until terminating in Europa point, about ninety feet higher. Its colour has a reddish tinge, and from the central parts masses of rock of a sandy and whitish appearance show an abrupt and rapid descent to the sea, clearly perceived from afar off. Seen from thirty to forty miles to the eastward, it looks like an island; but on a nearer approach it seems on the elevated shores of Algesiras, and if the weather be not clear, it becomes entirely confounded with them. When the weather is heavy and lowering, its peaks are lost in the clouds, at which time it is difficult to discern without a perfect knowledge of it.

Navigators who are not acquainted with it frequently mistake it for the *Sierra Bullones*, considering the Sierra Carbonera to be the rock, a mistake which has again induced them to consider the low part of the isthmus of Gibraltar, called (Mala Bahia) Bad bay, to be the mouth of the strait. This mistake has occasioned vessels to run ashore on the beach of Tumara, or even to run ashore on the coast unless their course has been timely altered; and in bad weather would occasion loss of life. But by even a little attention to the character of the land, it will be seen that neither in the low height of the *Sierra Carbonera*, nor in its round form, in nothing in fact does it resemble the *rock*, while the space which separates both is supremely contracted when compared with the breadth of the strait.

*Tides.*—The tides in Gibraltar bay are different from those in that of Algesiras the high water at springs being 1.47 p.m., and the greatest rise 4·5 feet, at neaps 1·4 feet.

*Observations on the bay of Algesiras.*—In spite of the inconveniences which the anchorage of *Algesiras*, as well as that of Gibraltar presents with on shore winds; they are nevertheless the best, and are all the strait affords to the navigator. If he is for taking the first, coming from the westward with winds from that quarter he should pass point Carnero as closely as possible, taking care to give a good berth to the *Pearl* rock, the only hidden danger in his way, and shape his course for Algesiras. He must not forget that off point Carnero the current has a tendency towards the shore, and that he will experience some severe squalls off it with westerly winds.

It often happens that while a westerly wind is blowing hard in the strait the wind is from north-west in the bay, which will oblige him to beat up, and which he should manage to do in the stream of current that is favourable to him. If he runs for his anchorage with a westerly or south-west gale, he should anchor as close in as possible; but if the wind be moderate, and he is only waiting for a Levanter, it will be sufficient to bring up in the bay *Getares* or between it and isle *Verde.*

As the roadstead of Algesiras is only taken with westerly winds, wait for the Levanter for clearing the strait. It is necessary if coming from the eastward to verify the state of the tide, for nothing will avail a ship to be beating with the ebb, while with the flood point Europa will be passed with two or three boards, and with a few more the anchorage of *Getares* or *Algesiras* will be reached. If it should be night, the light of isle Verde will show the navigator how near he should stand to the shore, and if he cannot well make that out, the light of Europa point will serve to guide him. By bringing this to bear south-east by east, and keeping it on that bearing until he makes out the lights of the vessels towards which he is standing, keeping them a little to the southward of west, and with his lead going, he may find his way to the anchorage.

*Mode of taking the anchorage of Point Mayorga.*—A vessel from the eastward with a strong Levanter intending to take the anchorage from point Palmones to the eastward will take care to keep clear of the

rock as far as half across the bay, in order to avoid the eddy winds which come down from the northward, looking with the wind to take with short boards, the anchorage most suitable for him. To do this with the most advantage he will make for Europa point, keeping his ship's head for Palmones, and using every precaution when passing in front of the rock, carrying snug sail with hands by the sheets, and as soon as she is beyond the reach of squalls, clap on more sail and work in the part clear of current as before observed. If it be possible to accomplish this with a favourable tide, there will be little trouble in taking any one of the secondary anchorages.

For a vessel running for Algesiras, with an easterly wind and intending to go to the westward, the anchorage of *Puente Mayorga* will be the best for her, because from thence she can round point Carnero.

*Mode of taking the anchorage of Gibraltar.*—If Gibraltar be the vessel's destination coming from the westward with the wind from this quarter, she will pass close to point *Carnero* and steer to north-north-east, which course will take her to the anchorage off the old Mole, or if finding the wind more off shore, she must stand on within the limits of the favourable counter-current. But if she has easterly winds and a high sea, she will keep off point *Carnero*, extending her board over to the African shore until she finds, that on the other tack she can reach the middle of the bay, and enter it outside the eddy winds of the rock, with proper precautions, until having the proper wind, and work up in it for the anchorage of the old Mole in the best place with easterly winds. If the ship be from the eastward and with strong easterly winds, she will manœuvre as already observed for the anchorage off *Puente Mayorga*, with the difference of borrowing as much as possible from the moment of clearing the eddy winds; with the view of working with the true wind to the anchorage west-north-west of the old Mole. With light easterly winds there will be no difficulty after having closed with Europa point in running along shore for the rock at a convenient distance; but always under manageable sail, although outside the wind may be light. For even then some straggling breeze will rush down from its recesses and do mischief with whole sails. The rock of Gibraltar has its squalls and eddy winds; and even those directly opposed to what is prevailing outside, with easterly winds. Likewise it has its contrary winds when it is westerly outside, and therefore the shore should never be approached too close when they are from this quarter.

Should a vessel, bound to Gibraltar from the eastward, meet westerly winds, whether weak or strong, she should always wait the flood-tide for passing Europa point, standing close to it, and within the limits of the tide until inside of it: then standing off from the rock, to a rational distance, and afterwards making for the anchorage. If the westerly wind be strong, and the tide contrary, and she does not like continuing under sail, so as not to be driven to leeward (which often happens), she may drop an anchor under foot in *Mala Bahia*. She will then be very well sheltered from the west and the holding ground

is good: but she should not pass the night there, as it should only be adopted temporarily, and to await the turn of the tide.

It is right to observe, that the eddy winds from the rock, produced by westerly winds on the eastern side of it, are as much if not more dangerous than those occasioned on the western side of it with easterly winds; on which account it will be right to give it a wide berth when running along its eastern side, and never to go within the limits of the squalls when approaching it to pass round Europa point.

In order to take the anchorage of Gibraltar by night, greater precautions are necessary than for taking that of *Algesiras*, because in the first case the vessel passes into shallows from very deep water, and hence no vessel should anchor in any part of the bay without having sounded previously; a precaution which should be more especially adopted by night; for a vessel will find herself in deep water, when she considers herself to all appearance on the coast. For anchoring by night beside the light of point Europa, a vessel may derive assistance from the lights of the new Mole, and even the light shewn by the vessel of the Port Captain, that will be lying at anchor in six fathoms water.

English vessels of war when from the eastward, and with an easterly wind desiring to take the new Mole, or the anchorage of Bella Vista, pass close by Europa point; and also the foot of the rock inside of the squalls from the rock, carrying sail ready for shortening (if necessary), thus shooting up to the anchorage, which they could not do by keeping off shore; for then they would be obliged to tack inside the squalls to gain it.

It must also be remembered that in the bay of *Algesiras*, on each tide, there are three distinct currents. With the flood tide, the stream sets past Europa point, directly over to point *Carnero*, where it assumes two distinct courses; one part continuing to the westward, while the other turns into the bay, sweeping along its western shore. At the same time, one part of that which enters the bay from Europa point, slips away from the eastern side of it, taking a course from south to the northward, so that the waters which penetrate into the bay along its opposite shores, reunite at the head of it, and together produce a current setting down the middle of it from north to south, hastening to gain the general current of the strait. The same thing, but in its reverse order, takes place on the ebb. The waters coming from the west by point Carnero, run from the south-west to north-east across the bay, separating into two streams at the head of it, and thus forming two counter streams which run along its western and eastern shores from north to south. These counter streams occur at two or three hours after the commencement of each tide, unless their progress be interfered with by some powerful means, such as a strong wind from north-east or south-west, an extraordinary tide, etc. With a knowledge of the direction which the waters take in the bay of Algesiras, it will be easy for the navigator to regulate his boards so as to avail himself of them for taking any anchorage in it.

## The Coast of Viscaya, Biscay.

The province of Viscaya (Biscay) which, as before observed, has the river Sabiot or Onton for its western limit, terminates in point Santurrarao, eastern extreme of the mouth of the Ondarroa by which the dividing line of *Guipuzcoa* passes. It contains fifty-two miles of coast very bold, without port or shelter for large vessels, if we except the estuary of *Bilbao*, the bar of which may be passed by vessels of fourteen and fifteen feet draught in fine weather.

The small inlets and ports which it contains are exclusively fitted for fishing craft and pilot boats which must resort to them at high water and fine weather, for at low water they are blocked up by sand, or have very little water.

To the east of cape Machichaco is the only good place of refuge for vessels of all sizes; but for certain winds only. This cape which extends to the north-north-west forms a bay on its eastern side, wherein occasionally navigators are obliged by necessity from the effects of westerly or south-west gales to seek a questionable respite, for the distress they may be in, accompanied by the conviction that they will be utterly lost if surprised by an opposite wind keeps them in continual alarm.

The stormy north-west winds, the constant scourge of the Cantabrian sea expend their fury on the coast of *Viscaya*. The frantic waves penetrate every corner of it, and entirely forbid any mercantile operations in its scanty ports. Fortunately it is clean, and the whole shore navigable; for the detached rocks on the coast lie some distance off it, enabling navigators to extend their boards to near the shore, and to pass it at a short distance, unless the *Vaga de Mar* prevails.

The ground is generally mountainous with ravines. From a distance at sea are seen the lofty crests of the Pyrenees, which separate the province of Viscaya from those of Alaoa and Guipuzcoa; the Gorbea rock being conspicuous from its rude and capricious figure, 5506 feet, and the rock of Anboto, 4881 feet above the sea. The spurs of the Cordillera, which descend in declivities to the sea, presenting a series of mountain peaks, many of which seen from the north-west appear in the form of perfect cones.

On the shore the ground is rocky, and arid with cliffs and ravines. In many of these is seen the sand thrown in by the north-west sea, lifted from the ocean's bed, and these form the only places approachable in fine weather.

*Winds.*—North-east and easterly winds prevail on this coast in summer, and which winds within the estuary of *Bilbao* they call north and north-north-west. North-west and westerly winds blow alternately with the former, which generally fall in the evening, to be followed by the land wind.

Southerly winds blow very hard in autumn. They last for two or three days and sometimes eight or nine, keeping the coast clear; but as soon as they haul to south-south-west, the sky begins to be covered

with scud and the Vendaval sets in: or perhaps winds from south-west to west dirty, which after some days change to north-west with heavy showers and a troubled sea.

This wind the most trying to navigators from the heavy sea which it throws in and closes the ports of *Viscaya* lasts in long spells of a fortnight interrupted by two or three days of moderate weather.

The only good turn which the north-western wind does for the navigator is not embaying him nor completely obscuring the coast. It may bring heavy showers, but it leaves fine intervals between them, and even lengthened ones, enabling him thus to make the land.

Not so the wind from north and north-north-east which being dead on shore, permits no vessel to get off it that may be somewhat close to it, completely obscures the coasts by the clouds which it brings with continued rain and hail. But these are not of long duration, and come generally between the middle of December and the end of February or beginning of March.

Some winters pass in which only two or three hard northers visit the coast; but again there are some in which they predominate very much.

North-east winds are not frequent in winter, but sometimes they come with heavy clouds. In these cases they last two or three days, and have the name of north-east pardo, dry north-easters. As they go down they haul to the east and then are preludes to the southerly wind.

As soon as the navigator observes the wind change from north-east, by the east to the south-east, he should make sail to get down on the coast, for the southerly wind will not be long coming, and with this wind a ship should keep near the coast, whether she is only cruising or is bound to any of the ports.

But not so when after two or three days of southerly wind it veers to south-west. In this case she would either get off the coast or into port, for she will not be long without the north-west wind.

In the spring of the year the winds are more moderate, but nearly always from the south-west or north-west quarters accompanied by rain, and there are years in which these delay their visit till July.

*Marejada (or swell).*—The north-west sea, which free from any obstacle has a range from the coasts of North America to our continent, is that which produces the most ravages. There is no corner of it that does not feel its effect, and whatever bar there may be, the vessel only in the interior of some estuary is safe from it at low water. From the middle of September or the beginning of October it is felt and with slight interruptions it continues two-thirds of the year. *It is nearly always the prelude of wind* which drives it and sometimes anticipates it for twenty-four hours.

In winter it is, that huge waves get up in the midst of calm and serene weather, that instantly close all our ports and estuaries, and lift themselves over the banks on our coasts in huge seas, or break on the summits of submarine mountains carrying even twenty-five and thirty fathoms water over them.

A vessel even at a distance from the coast, reels to the crests of these mountains of water; but the vessel which encounters them hampered by the shore runs serious risk of being wrecked, unless some providential slant of wind releases her from danger.

*Sudden changes of wind.*—In the month of August heavy whirlwinds and sudden changes of wind to the opposite quarter (called *Galernas*), are experienced on the coast of *Viscaya*. The storm is formed on the land during the heat of the sun; it establishes itself in the south-west, the horizon becomes obscured, and when the wind reaches west the weather becomes thick. As soon as the wind reaches this point, the navigator must prepare to receive it, for it will not be long before it becomes north-west, and is down upon him. Every precaution is insufficient to prevent its coming, and then it is most violent and does considerable damage. It lasts generally three or four hours in all its force accompanied by rain, but it gradually then subsides, to a north-west moderate wind, which clears it away and at nightfall it is calm.

There are occasions particularly in summer when the Galerna shifts suddenly from south to north-west, without any premonitory signal and then it is terrific. It is also common to see these two winds disputing the dominion of the seas, separated by a stress of calm both of them crisping up the waves on their borders. The vessel that should come between such powerful antagonists had better wait with the least sail possible the result of the contest.

*The southerly wind.*—The southerly wind discovers itself by a transparency in the atmosphere, which admits of the peaks of the most distant mountains being clearly seen, and the remotest objects appearing as distinct as if they were only a short distance away.

When the wind is easterly, or may be in calm, the high lands appear clear and the summits of the mountains sharp and greyish, the southerly wind is near. Navigators recognise it in the midst of the calm by the whirlwinds of dust that get up in land, or by the direction which the smoke of some fire takes made by look-out men, for the fishermen, or by that of some fire in the mountains.

*Lightning* is frequent at the setting in or termination of bad weather and also during the formation of the Galerna. Reports of muskets in the horizon from any quarter are signs of the wind coming from that quarter.

The Mercury of the barometer rises with westerly winds round by north to north-east and falls with the rest.

*Currents.*—In winter the currents set east and north-east and with great strength near the coast, and consequently drift into the Gulf of Gascony. On this part of the coast the navigator should therefore be on his guard.

It is not easy to determine the velocity of this current, but it may be estimated at three miles per hour in a westerly or north-west gale. In summer the current is scarcely perceptible and there are occasions when it runs north-west and west.

*Navigation.*—Vessels not bound to Bilbao or to *Guipuzcoa* ports, would do well to keep well clear of the coast of *Viscaya*. But those

bound to any one of them should approach it closely. As the prevailing winds are from south-west and north-west, there will be no loss in navigating along the coast.

By navigating along the coast the light-towers and remarkable buildings are always kept in sight, by which the reckoning may be corrected. The north-west gales lose much of their strength as they fall on the coast, and the current is not so strong as outside. Many unfortunate losses have occurred on the banks of Arcachon* from the vessel not having been navigated near the shore.

The navigator who keeps at a considerable distance from the shore, has to contend with the whole force of bad weather, and gets into currents which set him into the Gulf of Gascony, the murkiness of the weather, and the distance from the shore do not admit of his making the points by day nor the lights by night to assure him of his position, and when he believes himself according to his reckoning clear of all danger, he finds himself entangled among the sandbanks which fringe the terrible coast of France.

A vessel once drawn in to that dangerous bight with an on shore wind is only awaiting a horrible wreck, unless some favourable change of wind off shore comes to her assistance. The banks extend off to a considerable distance. Vessels of deep draught of water ground far away from the coast, and thereby much endangering the lives of their crews.

Considering all the circumstances, it will be well for the navigator who in winter time is bound to Bilbao or *San Sebastian* to run along the coast to Santona, and not to leave it until making the port for which he is bound.

## Coast of Guipuzcoa.

*Province of Guipuzcoa*—The province of Guipuzcoa is limited to the west by point *Santurrarao*, and to the east by the river Bidasao which in part limits it with France. It contains only forty-six miles of a rocky, broken, but clean coast, which takes nearly an east and west direction with some inflexions to the south. Its capital San Sebastian is the place of most commercial importance.

The ports which it contains are few and insecure, excepting Pasages, the only one deserving that name, and which in spite of its neglected condition will yet admit vessels drawing from fifteen to sixteen feet.

Maltreated as this province is in winter by the stormy north-westers which are so severe on the Cantabrian coast, and connected as it is with the formidable character of the Gulf of Gascony, its coast is even more to be dreaded than that of Viscaya, because when once the small ports which it has are missed, nothing more awaits the navigator than a disastrous wreck on the banks of *Arcachon* or *San Juan de Luz*. For this reason the utmost endeavour should be made to enter the Port of *Pasages*, when running for refuge from a north-west gale, and when neither Satander nor Santona can be made.

* See remarks on Arcachon in our last volume.

*Navigation.*—To avoid such a case the necessity of navigating near the coast was strenuously recommended, with the view of being able to recognise the land distinctly as it was passed; and to realiise at any moment the position of the ship. It should be remembered that south-west and north-west gales obscure the coast, and should a vessel be not near it (which even the rough state of the sea permits) it is not possible for her to distinguish objects well, which serve as marks for determining her position.

If it be necessary to stand off to wait daylight, as much sail as can be should be carried, so as to lose as little ground as possible, for the vessel will drift insensibly into the Gulf, from which it will be impossible for her to escape with the wind persisting stubbornly from the north-west.

A vessel in winter waiting for daylight with the view of entering a harbour the following day (and the high waters are from nine to ten), should be in with the coast at daylight: for if she be then far away from it, she will risk losing the precious moment for entering, a misfortune which has frequently occurred to those navigators who have an expressive fear of the shore.

*Currents.*—The navigator must also remember that the currents are stronger in proportion as they are further out in the Gulf of Gascony, and that there they turn to the north-east and north, following the direction of the French coast. They acquire so much strength with a north-west gale as to be considered as about four miles an hour, and the country pilots consider that there are occasions when they run five miles an hour. This strength of current during the gales of winter which always hauls to the north-west quarter, accounts for the numerous losses on the banks of *Arcachon* and *Cape Breton.*

In summer and during north-east and south-east winds, the current generally sets west and north-west from one to two miles an hour.

*Winds.*—The prevailing winds both in summer and winter differ slightly from those met with on the coast of *Viscaya.* The sea raised by gales from north-west and north is enormous, and generally east for two or three days after the wind has subsided. When this sea or swell gets up in the midst of calm weather, it portends generally a strong north-west gale and will precede for twenty-four hours, and sometimes forty-eight hours the wind by which it is produced.

*The Galernas* or those strong opposite winds to the south or north-west are common on the Viscayan coast. They generally occur in the months of July, August, and September, after a prevalence of south winds, the hottest of the country. It is very seldom that after a day of excessive heat, a Galerna does not blow in the evening, the greatest strength of which will last ten minutes to half an hour. Sometimes the *Galerna* comes on with the strength of a hurricane wind, without giving any notice of being at hand. Many of the wrecks on the coast of *Guipuzcoa* in summer time are occasioned by the sudden changes of wind, that surprise the navigator with all his sails spread in the midst of a complete calm.

## The Wreck Register and Chart for 1869.

The Annual *Wreck Register* has made its appearance in the midst of two calamities which are nearly overpowering in their vastness and destructiveness. The war which rages with such fearful havoc on the Continent of Europe, and the foundering of H.M.S. *Captain* in the Bay of Biscay, are amongst the disasters that will hereafter make the autumn of 1870 memorable in the history of the world.

War is, indeed, a terrible waste of all that binds together our sympathies and affections; but calamities like those of the *Captain*, which overtake us without warning, can be more easily borne with patience and resignation, because we know that they have been inflicted by no earthly and transitory emperor or king. Moreover, the loss of the *Captain*, in conjunction with that of the steamer *Cambria* on the Irish coast on the night of the 20th of October, with the sacrifice it is believed of 170 lives, are some of those fearful incidents which, by their appalling character, seem quite to overpower for the moment the daily and bloody records of the war.

These distressing reflections almost unfit the mind for a calm consideration of the 2,114 shipwrecks, with the lamentable loss of 933 human lives, which took place amidst the gales of last year on our coasts.

However, as there is a bright side to every picture, so, in regard to the records of this *Wreck Register*, we find that by means of the boats of the National Life-boat Institution, the rocket apparatus of the Board of Trade, and various other effective means, 5,121 lives were saved last year from various shipwrecks on our shores.

Our profound conviction is, that there is no greater valour displayed on the battle-fields of France in destroying human life, than in the heroism which is displayed by our life-boatmen throughout the dark hours of stormy nights, in saving human life. Take the following amongst scores of others, as an illustration of our remark:—

"The ship *Queen of the Tyne* was totally wrecked on the Corton Sands, off the Suffolk coast, during a gale from south-west and heavy sea on the 29th January. The Lowestoft life-boat of the National Life-boat Institution put off and found the vessel on her beam-ends, with the crew in the rigging. From the position in which she lay it was a work of great risk to board her, she being on the most dangerous part of the sand, and the seas being very heavy. However, the rescue was nobly and safely accomplished, the eight men being taken into the boat from the main-top-gallant-yard, which at times it was feared would have gone through her, as she and the vessel rose and fell together. It was a most narrow escape for the poor shipwrecked men, for they would probably all have been lost as the flood-tide made, had not the life-boat gone out to them."

As briefly as we can, we shall now proceed with our analysis of the *Wreck Register* now in course of publication.

We find, as we have before remarked, that during last year 2,114

wrecks and casualties, including collisions, occurred on the shores of Great Britain, accompanied by the loss of 933 lives.

This is indeed a large number, but when it is remembered, that in the course of one year, about 400,000 vessels, having a tonnage of 70,000,000 entered inwards and cleared outwards from British ports; and that our commerce continues to increase; it is a cause of thankfulness that our coasts are not visited with more wrecks than even the large number already mentioned. As it is, however, such casualties are of daily occurrence, and indeed so frequent are they, that their terrible consequences can hardly be fully realized. Still in how many a home must they be painfully felt, for almost every one of us has some relatives or friends connected with the sea.

The *Register* tells us that 2,594 ships were lost or damaged in the 2,114 casualties reported last year, representing a tonnage of 537,605, and employing 22,579 hands: in 1868 there were 2,131 vessels thus affected. Inasmuch as in cases of collisions, there must necessarily be more than one ship engaged, the number of vessels is in excess of the total number of disasters reported—each case of collision being only reckoned in the *Register* as *one* disaster.

This *Wreck Register* is the twentieth annual one issued—the first one having been prepared in 1850. Unfortunately some of the earlier returns are not so perfect as could be wished, and it is believed, that in the years 1855 to 1858, inclusive, all the wrecks may not have been reported, as the machinery had not then been organized so as to admit of the accuracy which this carefully-arranged document presents, now that it is made up from official and reliable returns.

On dividing these returns into four periods of five years each, the following Table gives the average of wrecks reported since 1850:—

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1850 | 660 | Annual Average for Five Years | 972 | 1860 | 1,379 | Annual Average for Five Years | 1,483 |
| 1851 | 1,269 | | | 1861 | 1,494 | | |
| 1852 | 1,115 | | | 1862 | 1,488 | | |
| 1853 | 832 | | | 1863 | 1,664 | | |
| 1854 | 987 | | | 1864 | 1,390 | | |
| 1855 | 1,141 | Ditto ... | 1,204 | 1865 | 1,656 | Ditto ... | 1,893 |
| 1856 | 1,153 | | | 1866 | 1,860 | | |
| 1857 | 1,143 | | | 1867 | 2,090 | | |
| 1858 | 1,170 | | | 1868 | 1,747 | | |
| 1859 | 1,416 | | | 1869 | 2,114 | | |

A glance at this Table shows that in proportion as the number of our ships has augmented, the number of wrecks has been steadily increasing; and it is also at once apparent that last year the number reported is in excess of the average of all previous years of which we have a reliable record—it being 367 more than in 1868, and 221 above the average for the past five years.

It is worthy of remark that 1866 and 1867 show the next highest number of wrecks noted; but in respect to that fact it should be mentioned, as indicative of the bad weather experienced in 1866 (which was the year when the *London* was wrecked in the Bay of Biscay, and

the year when so many shipwrecks occurred in Torbay), that 926 disasters happened when the wind was blowing at force nine (a strong gale) and upwards. The following year (1867) we were also visited with heavy gales in six months of the year; and in one storm, which lasted from the 1st to the 3rd December, no less than 326 vessels were lost or damaged, 319 lives being unfortunately lost from them!

It is interesting to observe the varying number of shipwrecks which happened in each month of last year, and we therefore append a Table showing this, annexing also a column in which we have shown from what quarter the principal gales blew during such periods:—

| | Number of Wrecks. | Chief Winds in each Month. |
|---|---|---|
| January | 216 | S., & S.S.W. |
| February | 245 | S.W., & W.S.W. |
| March | 227 | N.E, & N.N.E. |
| April | 88 | S.W. |
| May | 78 | E.S.E., & E.N.E. |
| June | 75 | N.N.E, & N.E. |
| July | 57 | S.W., & W.S.W. |
| August | 70 | S.W., & N.W. |
| September | 237 | W.N.W, & S.W. |
| October | 333 | N., & N.N.W. |
| November | 182 | N.W., & W.N.W. |
| December | 306 | S.W., & S.S.W. |
| Total | 2,114 | |

The most destructive gale in 1869 was the northerly one experienced on the 19th October.

As regards the nationalities of the vessels wrecked on our shores during the past year, 2,163 of them were British and 387 foreign ships; while the country and employment of 44 are unknown. In classifying the voyages of the vessels, it is seen that 663 British ships were foreign going; and that of the foreigners, 298 were making voyages to or from the United Kingdom; 46 were passing our shores, and 28 were employed in our coasting-trade. The remaining 1,559 ships were engaged in the coasting-trade of the United Kingdom, with the exception of those whose country and employment are unknown.

The number of collisions last year was 461; and of the 1,653 wrecks and casualties other than collisions, 606 were total wrecks, and 1,047 were disasters causing partial damage more or less serious. In the previous year (1868) there were 1,368 wrecks and casualties other than collisions; while in 1867 the number was 1,676, or more than had been reported in any previous year since 1858.

Taking the average for the past fourteen years, including 1869, the number is, for wrecks resulting in total losses other than collisions, 484; and for similar casualties resulting in partial damage, 719; while, as we have just said, the number for the past year is 606 for total losses, and 1,047 for partial damage irrespective of collisions.

The accompanying new and enlarged Wreck Chart of the British Isles for the year 1869, enables the reader at a glance to fix on the position of each of last year's wrecks—every black dot on that chart repre-

sents such a casualty, while the several life-boat stations of the noble fleet belonging to the NATIONAL LIFE-BOAT INSTITUTION are also clearly indicated by a characteristic emblem.

It will be observed that very few parts of the coast are without the melancholy round "wreck" dots; but happily it is also noticeable that the "life-boat's" mark is now to be found in large numbers on the Chart.

We now turn to the ages of the different wrecked vessels, as far as the same were known. For 1869 it is follows:—

| | Vessels. |
|---|---|
| Under 3 years ... ... ... ... ... ... ... ... | 198 |
| 3 and not exceeding 7 years ... ... ... ... ... | 406 |
| 8 " " 10 " ... ... ... ... ... | 218 |
| 11 " " 14 " ... ... ... ... ... | 308 |
| 15 " " 20 " ... ... ... ... ... | 314 |
| 21 " " 30 " ... ... ... ... ... | 436 |
| 31 " " 40 " ... ... ... ... ... | 229 |
| 41 " " 50 " ... ... ... ... ... | 112 |
| 51 " " 60 " ... ... ... ... ... | 53 |
| 61 " " 90 " ... ... ... ... ... | 32 |
| 91 " " 100 " ... ... ... ... ... | 2 |
| Unknown ... ... ... ... ... ... ... ... ... | 286 |
| Total ... ... ... | 2,594 |

A noticeable feature of this list is, that ships comparatively new are lost in greater proportion than those which are old. Thus we find that up to fourteen years 1,130 were lost, and from fifteen to thirty there were 750, while there were 341 old ships between thirty and fifty, and 87 very old ships, one of which was 94, and another nearly a hundred years old! The last named vessel was a collier, and it had seven persons on board when it was wrecked, one of whom only was saved.

We have repeatedly, through the medium of this Journal, strongly called attention to the terribly rotten state of many of the ships above twenty years old; in too many instances, on such vessels getting ashore, their crews perish before there is any possibility of getting out the life-boat from the shore to their help.

From a Table giving the localities of the wrecks, we have compiled, on an admirable plan suggested by Henry Jeula, Esq., the Honorary Secretary of the Statistical Committee of Lloyd's, the following particulars, giving the average percentages of the disasters according to the different parts of the coast of the United Kingdom on which they happened:—

| Parts of the Coasts | Per Centage. |
|---|---|
| East Coast: Dungeness to Duncansby Head (inclusive) ... ... | 56·30 |
| West Coast: Land's End to Mull of Cantyre (inclusive) ... | 23·41 |
| South Coast: Dungeness to Land's End (exclusive) ... ... | 10·08 |
| Irish Coast... ... ... ... ... ... ... ... ... ... ... | 7·00 |
| North and West Coasts of Scotland, from the Mull of Cantyre to Duncansby Head; including the Northern Islands, Hebrides, Islay, Orkney, Shetland, etc.... ... ... ... ... | 1·84 |
| Isle of Man, Scilly Islands, and Lundy Island ... ... ... ... | 1·37 |
| | 100· |

As usual, the largest number of wrecks occurred on the east coast, although the loss of life was not greatest there. The largest loss of life, during the ten years ending in 1869, was in the Irish Sea and on its coast.

Owing to the admirable and detailed manner in which the *Register* is worked out, we are enabled to denote the mode in which the different wrecks were rigged. Thus we find that of those which happened in 1869 98 were fitted as ships, 192 were steam-vessels, 706 schooners, 468 brigs, 327 barques, 265 brigantines, and 178 smacks, the remainder being mostly smaller craft, rigged in various ways. Schooners and brigs, as usual, furnish the greatest numbers of wrecks, that being the ordinary class of rig of our coasting-vessels.

The Table which distinguishes the wrecks in 1869, according to the force of the wind when they happened, is a highly instructive one. It is as follows :—

| Force of Wind. | | | | Vessels. |
|---|---|---|---|---|
| Calm | | | | 19 |
| Light air. Just sufficient to give steerage way | | | | 28 |
| Light breeze | With which a ship with all sail set and clean full, would go in smooth water. | 1 to 2 knots. | | 100 |
| Gentle breeze | | 3 to 4 knots. | | 30 |
| Moderate breeze | | 5 to 6 knots. | | 178 |
| Fresh breeze | In which she could just carry going free | Royals, etc. | | 220 |
| Strong breeze | | Single reefs and T. G. sails. | | 262 |
| Moderate gale | | Double reefs and jib. | | 77 |
| Fresh gale | | Triple reefs, etc. | | 63 |
| Strong gale | | Close reefs and courses. | | 700 |
| Whole gale, in which she could just bear close reefed main-topsail and reefed foresail | | | | 157 |
| Storm. Under storm staysail | | | | 39 |
| Hurricane. Under bare poles | | | | 141 |
| Unknown | | | | 100 |
| | | Total | | 2,114 |

This reveals the remarkable fact that no less than 177 wrecks happened when the wind was either perfectly calm, or at most there was not more than a gentle breeze blowing, and that 690 vessels were lost in moderate, fresh, and strong breezes.

We notice that of the 606 total wrecks during the past year on our shores, not counting collisions, 74 arose from defects in the ships or their equipments, such as imperfect charts, compasses, etc.,—45 of them, indeed being caused by absolute unseaworthiness—80 occurred through the fault of those on board; 71 parted their cables, or dragged their anchors, and went on shore; 57 were lost from damage to hull or the loss of masts, yards, or sails; 119 foundered, 3 capsized; and the rest were wrecked in various other ways.

It is a lamentable fact that, irrespective of collisions, 154 vessels should thus have been totally lost in one year, we fear, in too many instances, through the short-comings of man, attended, as these disasters too frequently were, with a deplorable loss of life.

And as regards those casualties, 1,047 in number, classed as "partial losses other than collisions," it appears that 156 of them were caused by carelessness, and 72 by defects in the ships or their gear; and, taking the record of the past ten years, we grieve to say that 3,249 vessels were either totally or partially lost from such really preventible causes in that period; and the loss of life in such cases must, of course, have been truly alarming.

We moreover find that 571 vessels were wrecked last year that were under the command of masters who held certificates of competency; and that in 264 cases the masters held certificates of service; while the large number of 1,135 were lost which were under the command of persons who were not legally compelled—as most assuredly they should have been—to possess such certificates of competency, besides 389 that had foreign masters not holding British certificates. In 235 cases it is not known whether or not the masters held certificates.

On analysing the tonnage of the vessels lost last year, it proves to be as follows:—

| | |
|---|---|
| Vessels under 50 tons ... ... ... ... ... | 462 |
| 51 and under 100 „ ... ... ... ... ... | 616 |
| 101 „ 300 „ ... ... ... ... ... | 996 |
| 301 „ 600 „ ... ... ... ... ... | 371 |
| 601 „ 900 „ ... ... ... ... ... | 73 |
| 901 „ 1200 „ ... ... ... ... ... | 49 |
| 1201 and upwards „ ... ... ... ... ... | 25 |
| Unknown ... ... ... ... ... ... ... | 2 |
| Total ... ... ... | 2,594 |

As respects cargoes, it seems that 691 were laden colliers, 183 colliers in ballast, 139 vessels having metallic ores on board, 187 with stone ores, etc., 153 were fishing-smacks, and 1,241 were ships with other cargoes or in ballast.

As usual the ships of the collier-class employed in the regular carrying-trade have suffered severely; they numbered 1,200, or about half the whole body of ships to which accidents happened during the year. Thus it is, in a great measure, that so many casualties occur on our coasts, for such is the notoriously ill-found and unseaworthy manner in which these vessels are sent on their voyages, that in every gale—even if it be one of a moderate character only—it becomes a certainty that numbers of them will be destroyed, as will be seen from the fact that 844 of them were lost in 1864; 934 in 1865; 1,150 in 1866; 1,215 in 1867; 1,014 in 1868; and 1,200 in 1869—or 6,357 in six years.

It is overwhelming to contemplate the loss of life from these, in too many instances, *avoidable* wrecks.

Turning now to the cases of collisions at sea off our coasts, which

are often of a very distressing character, the number reported last year, as we have before observed, is 461; and of these 148 occurred in the daytime and 313 at night. The numbers given for the year 1868, were 99 in the day and 280 in the night. Those for 1869, again, give 90 as total and 371 as partial wrecks; and of the total wrecks no less than 29 happened from bad look-out, 16 from want of proper observance of the steering and sailing rules, 8 from thick and foggy weather, and 37 from other causes.

Of the partial losses through collision, 66 were from bad look out, 53 were from neglect or misapplication of steering and sailing rules, 23 from want of seamanship, 33 from general negligence and want of caution, 11 from neglecting to show proper light, and 185 from various other causes.

The nature of the collisions is thus given:—17 occurred between steamers, and 193 between sailing vessels while both were under way; 76 collisions also happened between sailing vessels, one being at anchor and the other under way; 66 between steamers and sailing vessels, both being under way; and only 13 were caused by steamers running into sailing vessels at anchor; 4 by sailing vessels under way running into steamers at anchor; and none by one steamer coming into collision with another at anchor; 92 collisions also occurred through vessels breaking from their anchors or moorings.

The following important table, showing the casualties attended with loss of life on the coasts of the British isles during the past nine years, is so interesting and instructive, that we can hardly omit it, as it is evident that it has been prepared with great care and intelligence:—

| Years. | British Sailing Vessels. | | | British Steam Vessels. | | | Foreign Vessels. | | |
|---|---|---|---|---|---|---|---|---|---|
| | Vessels wrecked, with loss of Life. | Tonnage. | Number of Lives lost. | Vessels wrecked, with loss of Life. | Tonnage. | Number of Lives lost. | Vessels wrecked, with loss of Life. | Tonnage. | Number of Lives lost. |
| 1861 ... | 163 | 25,043 | 638 | 7 | 1,857 | 66 | 30 | 8,297 | 169 |
| 1862 ... | 124 | 20,146 | 495 | 5 | 1,739 | 119 | 16 | 6,028 | 73 |
| 1863 ... | 128 | 16,110 | 500 | 1 | 467 | 33 | 22 | 2,670 | 87 |
| 1864 ... | 88 | 9,545 | 392 | 8 | 3,639 | 83 | 12 | 2,215 | 41 |
| 1865 ... | 137 | 19,501 | 461 | 10 | 3,666 | 136 | 17 | 4,250 | 101 |
| 1866 ... | 163 | 26,092 | 703 | 9 | 3,802 | 92 | 27 | 8,797 | 104 |
| 1867 ... | 230 | 31,470 | 918 | 15 | 5,361 | 195 | 34 | 6,127 | 230 |
| 1868 ... | 170 | 28,059 | 678 | 7 | 2,236 | 43 | 19 | 3,570 | 104 |
| 1869 ... | 175 | 29,064 | 724 | 6 | 1,457 | 19 | 28 | 4,045 | 133 |
| Totals for nine years | 1,378 | 204,827 | 5,509 | 68 | 24,164 | 786 | 205 | 40,999 | 1,042 |

The lives lost in 1869 were in 211 vessels, 132 of which were laden, 61 in ballast, and in the other 18 cases it has not been ascertained whether the vessels were laden or not. Only 166 of these vessels were entirely lost, the rest having only sustained partial damage. 435 men lost their lives in vessels that foundered, 118 in collision cases, 228 in vessels stranded or cast ashore, and 92 from other causes.

Nearly 170 lives were lost in fishing-boats overtaken suddenly, in too many instances, by heavy gales of wind.

Of the ill-fated vessels wrecked with the loss of all hands, little of course is usually known. the entries in the *Register* being necessarily confined to the statement of their having sailed from one port for another; and, as they were never more heard of, it becomes necessary to state in ominous terms opposite to their names "Foundered, (supposed) total loss," the crew being numbered under the heading "Number of lives lost." How truly significant are these brief and telling words!

Large, however, as the loss of life is, it would of course have been vastly increased in the absence of the noble work performed in every storm by the boats of the National Life-boat Institution, the rocket apparatus of the Board of Trade, and various other successful means through which, under God's providence, thousands of our shipwrecked sailors were saved from a watery grave last year.

At the present time there are 223 life-boats on the coasts of the British Isles, under the management of the Royal National Life-boat Institution, besides 41 controlled by local boards alone. Again, the Rocket and Mortar Apparatus Stations now number 282, these being under the care of the Coastguard and the Board of Trade.

Wherever there is a dangerous spot on our coasts—provided sufficient men are to be found there competent to work a life-boat—it has been the constant aim of the Institution to form a life-boat station. Nobly do the gallant life-boat men answer to the call of duty, and constantly do they show that they are ready to risk their own lives to save those of others.

Thus during the past twenty-two months, the Institution has contributed by its life-boats and other means to the saving of 1,847 lives from wrecks on our coasts, in addition to 53 vessels rescued from destruction—making a grand total of 19,694 lives saved from shipwrecks since the first establishment of the Institution, in addition to property of incalculable value.

The tendency of the foregoing observations, and the whole tenour of this *Wreck Register*. must make it manifest to every one that the continuous and successful efforts which are being so strenuously made on our coasts—and never more so than during the storms of the last two or three weeks, by the National Life-boat Institution, the Board of Trade, and our boatmen and fishermen—must not be allowed on any consideration to falter, even for an hour. Hundreds if not thousands of persons are placed every storm in jeopardy of their lives by shipwrecks, and since the danger is constant, the provision against that danger must not be suffered to relax. The effects of the stormy elements, and the not unfrequent carelessness and ignorance of man can only be even partially overcome by calculations and foresight corresponding to those which have so strikingly distinguished the conquerors in the present European conflict, "for peace has her victories no less renowned than war."

We, therefore, do not hesitate to make a renewed and earnest appeal

to the British public on behalf of the National Life-boat Institution, now absolutely and entirely dependent on voluntary support. We believe that no Society has stronger claims on public sympathy and support than an institution which contributes every year to the saving of hundreds of shipwrecked persons, who, in the absence of its noble life-saving fleet, would in all human probability perish—

"Without a grave, unknell'd, uncoffin'd, and unknown."

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## Notes of Travel across the American Continent from Omaha to San Francisco.

San Francisco, September 30th, 1870.

The Pacific Railway, which is about 1,914 miles long, begins at Omaha, in the State of Nebraska, and traverses successively the State of Nebraska, the Territory of Wyoming, and the States of Utah, Nevada and California. It is divided into two parts: the Union Pacific, 1,032 miles, to Ogden, in Utah; and the Central or Western Pacific 882 miles, from Ogden to San Francisco. It may be reached by either of three lines of railroad from Chicago. It has also direct communication with St. Louis. From New York it takes seven days to reach San Francisco; from Toronto, six; from Chicago, five; and from Omaha, four days and six hours. The fares of course vary according to the places where tickets are purchased, but it is an advantage to those coming from the Far-East, or Canada, to buy through tickets at home. From Chicago, the fares are: first-class, one hundred and eighteen dollars; second-class, ninety-three dollars, in greenbacks. There are third-class cars for emigrants and others requiring cheap travelling, attached to freight trains, that occupy about double the time in making the trip. Through tickets from New York, third-class, cost sixty dollars; cheaper than this they cannot be purchased at any of the intermediate cities or stations. Only one train of first and second-class cars leaves Omaha daily, and this at one o'clock p.m. There is a weekly train of Pullman Palace cars which leaves Omaha every Thursday. This the luxuriously inclined or the invalided may avail themselves of. The train is fitted up in the manner of a first-class hotel, and every luxury in lounging, sleeping, eating and drinking, smoking, washing and attendance may be enjoyed upon it. Those to whom smoking is offensive should not take tickets for the second-class cars of the daily trains, as they are used in a double capacity. Sleeping berths cost two dollars each night, or sixteen dollars for constant occupancy for the full trip. They are not, however, at the service of second-class passengers. The latter have to make themselves comfortable as they can in their seats. In the night time blankets or rugs and thick shawls will be decidedly serviceable. All the cars are supplied with a stove at each end, and fires are

lighted when the state of the weather calls them into requisition. The water tanks are kept constantly supplied with ice, and everything is done to make the travelling as agreeable as possible.

On reaching Omaha one's first care is to look after his luggage. It may be one or two hours before it is re-checked, but as there are several hours of an interval, it will be attended to in good time for the trains. Should it be necessary to have access to your trunks this is the time to do it. One hundred pounds of baggage is allowed to each adult passenger—any over that weight is charged fifteen cents per pound. The baggage is not always weighed, however, and valises, satchels, and baskets taken in the cars are not interfered with. Some of the passengers had considerable extra baggage; and one man had to pay two hundred and fifty dollars for what he brought with him. This he might just as well have sent as freight at half the expense, as the delay would be trifling. If your luncheon basket, which is a necessary requisite with every traveller over this line, is not already well filled, now is the time to attend to it, and in the dining room adjoining the station you will find every requisite. I grumbled at some of the charges made for edibles, but the proprietor replied that he had to pay his cook one hundred and forty dollars a month; a statement which I took the liberty of mentally doubting. There are eating stations, however, along the whole route, at which meals are furnished at a cost of seventy-five cents to one dollar. It is better to have greenbacks for these expenditures as gold or Canada bills do not obtain their value, and pass for no more than American currency. At those eating stations the baskets are constantly replenished, and fruit and pie vendors enter the cars at all leading stations, so that there need be no fear of hunger. As a cup of tea or coffee will cost fifteen to twenty-five cents, according to the pretensions of the establishment it is purchased at, it is wise, as many understand, to have a tea or coffee pot along to send in for a family supply.

The train in which I travelled was crowded, as I understand are all the trains of this road. The journey being long, it is desirable to make your companionship as pleasant as possible. The direction from Omaha being due west, I took the north side of the car to avoid the sun, and this in summer time is desirable until Ogden is reached, and a change of cars made. A party of three on the same side faced seats, and thought to have a square all to themselves, but from the search for places, it soon became evident that valises would have to be removed, and the fourth seat given up. A knowing one close by whispered to the head of the party, "You will have to give up that seat, and had better choose your company; there is a nice young lady standing up there in the passage, secure her." Secured she was accordingly, to the gratification of all parties excepting her uncle, who was accompanying her, and had to be satisfied with a place alongside of a tall Canadian at the other end. In the second class, or smoking car, was a company of English gipsies who made themselves very undesirable companions by their noisy ways and dirty habits. They took the liberty of doing their cooking on the car, and were not interfered with.

We had some characters on the train, including a Missouri hunter, who was going to join his son, a wealthy farmer at King River, California. To Missouri he came from Kentucky when a boy, and claimed that his father was a near relative of Daniel Boon, the founder or first settler of that now celebrated State. He had crossed the country twenty years before on a hunting expedition, and of course noticed great alterations since that time. Then settlements were unknown; the buffalo, which is now invisible, roamed in thousands over the prairies; and the red man wore only his war paint. Among the many Canadians in the company was one of the well-known Schram family, of London, returning to Nevada, where he was rapidly realizing a fortune at mining operations. He was familiar with all the mining regions of the Pacific States and Territories, and understood camp life as well as any man: was a strong Democrat in politics, entirely opposed to the importation of Chinese, and in favour of the annexation of Canada to the United States; thought, if he liked, he could be elected to the highest political position attainable in his adopted State, as he was liked by the miners, but did not care for office.

Bidding good-bye to Omaha and the great muddy Missouri river, the iron horse commenced on his course towards the Pacific over a broad expanse of plains some 500 miles in extent. On his left was the Platte river, which accompanied him in its various windings for 700 miles. Thirty stations were passed in succession until we reached North Platte City, 290 miles from Omaha. Here a fork of the river takes a northerly direction—hence the name of a town, said to contain 600 inhabitants. Fremont, a place forty-seven miles from Omaha, is put down for 2,500 inhabitants, and Columbus, about eighty miles, for 800. Flat, parched-looking prairie land, here and there dotted with the simplest kinds of wooden houses, and lined with a slight growth of trees along the banks of the rivers and creeks, is what the eye has to rest upon. The land, nevertheless, is good, and fine farms are not unfrequent. For 100 miles it is settled by Germans, but at Fremont I heard the French language spoken freely. Large herds of cattle and horses were frequently visible. On the east side of the North Platte is Fort Macpherson, the first of a series of forts where United States soldiers are stationed, having an eye upon the Indians. We saw none of the latter, however, before entering Utah.

From North Platte to Cheyenne, in Wyoming territory, are twenty-one stations. Cheyenne city is 516 miles from Omaha, and between it and North Platte is the once famous Julesburgh, noted while the road was making for its rapid growth, its murders and debauchery. But three or four indifferent houses, besides the railway station, now mark this dreadful spot, and were it not for the sign on one of the houses—"Julesburgh store," I would not have noticed it. "Prairie Dog city" is about sixty miles further on. You must not suppose this a place of human habitation. It is on the contrary occupied by little animals resembling large red squirrels, who burrow in the ground and throw up mounds of earth from six to twelve inches high. Along here for a great extent the ground looked very barren, and the little mounds

thrown up by the shy little animals exhibited nothing but coarse gravel. It is singular that snakes and owls share their under-ground abodes with the prairie dogs. At Omaha the elevation above the sea is 1,142 feet, while at Cheyenne it is 6,011, showing a gain in the rise of 4,899 feet. This ascent increases until the water-shed of the continent is reached among the Rocky Mountains. Cheyenne lies at the base of the most easterly range of the Rocky Mountains, called the Black Hills, where the unbroken prairie ends. A population of 3,000 is claimed for it. From here runs the Southern Pacific Railroad across Colorado, along the base of the Rocky Mountains, to Denver city, one hundred miles distant. Near Denver are some of the highest peaks of the Rocky Mountains, such as Pike's Peak and Grey's Peak, the latter rising to the height of 14,000 feet. At Cheyenne may be said to commence the ascent of the Rocky Mountains, but the rise is so gradual as to be hardly perceptible. In Nebraska and Wyoming, female suffrage has obtained, and in the latter place an election had recently occurred at which nearly every woman in the territory voted. As there are but five or six hundred of them altogether, however, no serious consequences resulted.

Fort Russell, after leaving Cheyenne, is a conspicuous object. Like all the other forts, the number of men occupying it is limited—only about sixty-five, all cavalry. Their horses are to be seen grazing together on the prairies, within easy distance; while their tents dot the adjacent ground. Nine stations, within a distance of fifty miles, bring you to Laramie City, also in Wyoming. The ground is undulating, and half way between the two cities, at Sherman station, is the highest point on the railroad between the two oceans, the elevation being 8,242 feet. A trestle bridge, 650 feet long and 126 feet high, crosses Dalecreek, a little beyond. Here commence the snow sheds and fences, which soon become quite familiar to the traveller's eye. Large isolated rocks, looking as if made up of huge boulders piled on top of each other, become also quite common. Although ascending the mountains, we are in the Laramie plains, having passed by the Black Hills. Antelope, elk, and deer are said to abound here, but the antelope was the only animal visible. It is about the size of the goat, and scampered away on the approach of the train. Portions of these plains are undulating and grassy, but the greater part is a rolling desert. Between Laramie City and Ogden in Utah there are forty-one stations. The distance is about 460 miles, all within the Rocky Mountains. Nothing is to be seen growing but sage brush, which does not attain more than a foot in height. Cannel coal, however, is said to be abundant.

In the Desert west of the Laramie Plains, and about 720 miles from Omaha, the division of waters takes place, and this therefore is called the Continental Backbone. The elevation is between 6,840 and 7,030 feet. The formation is conglomerate or mixed. Moss agates are found here, and are sold at stations along the way. "Buttes," or bluffs rising from level ground, frequently meet the eye. They take such forms that many of them look like buildings, hence one of the stations

is called "Church Buttes." They are reddish in colour. Between Church Buttes and Bridger stations, to the southward, views of the snow-capped Uintah mountains are obtained; 937 miles from Omaha, Utah is entered, and we are soon in what is called the Wahsatch Range of the mountains. The word "canyon" now becomes familiar, and at Castle Rock station we enter on what is called the Echo Canyon. I can only compare it to a wide street—the high red bluffs on the right hand side resembling blocks of houses. The regular openings between the bluffs or cliffs look like intersecting streets. Sometimes they are on the one side and sometimes on the other. Hanging Rock, 2,000 feet high, Pulpit Rock and the Witch Rocks, are curiosities on the way that I have not time to describe. The Devil's Slide and Devil's Gate also attract the traveller's attention, being curious formations to be met with among the many windings of the mountain valleys or "canyons" through which the railroad track easily finds its way. I looked up towards the tops of those almost perpendicular cliff-like bluffs until my eyes grew dim, and my head dizzy, in the meantime wondering at their great height. Yet I could hardly convince myself that I was traversing those celebrated mountains at railroad speed. It seemed to me all the time, so gradual was our ascent, as if the Rocky Mountains were yet to be reached.

The Thousand Mile Tree, a lonely sentinel on the wayside, marking the distance from Omaha, I distinctly noticed. It is not large for a pine, but standing in the shadow of the mountains, with the Webber River rippling by it, attracts such attention from its associations as it could not otherwise secure. Passing through some more canyons, tunnels, narrow cultivated valleys and Mormon villages, we reached Ogden, the western terminus of the Union Pacific Railroad, where a change of cars and a delay of two or three hours became necessary. Ogden is set down in the guide books as having 6,000 inhabitants. Where they were I tried hard to find out, but failed in the effort. There certainly were not passengers enough on the train to make up the deficiency, and I became convinced that all the places along the road have had their populations greatly exaggerated. If Ogden has more than 1,500 inhabitants there must be some excellent mode of hiding them away. Although this is the longest section of the road, we were only a little more than two days in passing over it. The riding, I must say, was smooth, and the dust not particularly annoying. No mishap occurred to the train, nor were there any vexatious delays at any of the stations.

Those who wished to visit Salt Lake and have a peep at Brigham Young's dominion had now an opportunity. A train started from Ogden for there soon after our arrival, the distance being about thirty miles. The fare is two dollars each way. The delay at Ogden was three or four hours, during which time baggage was re-ticketed, a change of cars effected, and a new stock of refreshments laid in. Melons and fruit were abundant and cheap, and the vendors were well patronised. Among the many luxuries to be had at Ogden was the Mormon newspaper. An extra containing the war news sold for ten

cents. With which side in the war Mormon sympathy leant, I did not study hard enough to learn.

When we entered the cars at Ogden, in Utah, we were in the hands of a different railway company (the Central Pacific), although the road forms a portion of the same continuous line. Instead of taking a seat on the right hand side, as in the cars of Omaha, I this time took my seat on the left, because it is considered the best for sight-seeing. We are, of course, in the Valley of the Salt Lake, of which we get an occasional glimpse. We steal along the base of the mighty Wahsatch mountains, which here are very high, rearing their snow-clad summits amid the clouds, and leave the peaceful cities and towns of Mormondom rapidly behind. At Corinne the stage road runs northward to Montana, through several Mormon valleys. After skirting awhile along the northern shore of Bear River Bay, the desolate Promontory Range is reached. Promontory is noted for being the spot where the last rail was laid and the last spike driven on the road. Having passed the Salt Lake region, we enter the great American Desert. For about one hundred and fifty miles nothing but sage brush and alkali meet the eye of the traveller. The alkali gives the earth the appearance of being covered with hoar frost, but it only presents itself in patches. At Lucin Station, about ninety miles from Ogden, we crossed the State line and entered Nevada. To the north of us in the latter State we passed Thousand Spring Valley; but the south of us was a vast salt field. Elko, Nevada, put down as 2,500 inhabitants, was the next town of importance reached. Surrounding this place are many fine valleys, with rich grass. At every station where the train stopped, wretched-looking specimens of the Shoshonese Indian women presented themselves to beg anything they could get from the passengers. I never saw so degraded and ugly-looking objects among the Canadian Indians. Until a few years since, the Shoshonese went almost naked; but now they wear some clothes, such as they are. They are different, however, from the Alpaches, of Arizona and New Mexico, that nothing will civilise or subdue, and for whom, it is pretty generally conceded, there is no alternative from the deadly bullet.

Stages leave Elko for various mining districts, both to the right and to the left. Leaving Elko, on we went through endless canyons among the mountains, until we reached the Palisades, being a formation similar to that in the highlands on Hudson River, but not of so great extent. The appearance is that of a huge wooden palisading. The industrial feature of this region is the immense waggons used for teaming at the silver mine, drawn sometimes by as many as a dozen horses or mules. The Palisades are about 570 miles from San Francisco. For some distance, in fact, from where we emerged from the desert waste, the Humboldt River, which rises just west of that region, was accompanying us, and of course this region is called the Valley of the Humboldt. At about 400 miles from San Francisco it empties itself into a sink, after which, for forty miles, another desert is passed over.

At Wadsworth, 327 miles from San Francisco, the Truckee River is

crossed, and after that the word Truckee becomes familiar—there is the Truckee River and the Truckee mountains and Truckee town, and Truckee this and Truckee that. From Rheno, Virginia city, with its "Gold Hill," is reached by stage. It is to the south, I do not know how many miles. Virginia city is a place of great importance, possessing perhaps 15,000 or 18,000 inhabitants. It is here where Mr. John Skray, now in Toronto, has the greater share of his fortune, so rapidly accumulated and well-deserved.

The next point of interest, not many miles distant, is the State line between Nevada and California. It is 280 miles only from San Francisco, showing the breadth of the Golden State at this point. We are in the great Sierra Nevada mountains, and ascend from 3,921 feet elevation at the sink of the Humboldt until we reach 7,042 at the Summit, where Donner Lake is situated. After leaving the town of Truckee, I was surprised to see another railroad track high above us on an opposite mountain, but it turned out to be our own track winding its way around the mountains among the cayons or gorges. We could not enjoy the view of these great mountains, as for thirty-five miles the track is covered with snowsheds and runs through rocky tunnels.

The snowshed is built of timbers 12 by 14 inches, and placed 20 inches apart. It is 18 feet high, and has a lean-to roof, covered with four-inch planks, and firmly secured and bolted to the mountain side. This is made absolutely necessary, or the avalanches which sometimes descend from Crusted Peak would be dangerous to trains and travellers. The Summit Tunnel, with which these sheds are connected, is 1,666 feet long, and is cut through the solid granite. We passed this interesting point early in the morning, and were aroused from our sleep by the stentorian voice of a lusty negro who had boarded the cars, shouting out, "Here's your mountain trout and valley cheese, for one bit." The trout and cheese I found on examination were excellent, and spoke well for the productions of the state which was to be my future home. I may as well say that here for the first time I heard of the coin in which everything is reckoned in California, the "bit." The bit means 12½ cents. silver, or a York shilling; but as I have not yet seen that interesting coin since I left Canada, where it was considered a drug, in the shape of a British sixpence, I consider the thing a decided mistake. A quarter-dollar is called two bits, although but one piece of silver; ten cent. pieces, however, are plentiful, and pass for bits for convenience when only one is wanted. Canadians coming out here could not bring with them a more profitable commodity, as all American silver passed at gold value in California, where greenbacks and fractional currency are at a discount, notwithstanding that here, as well as everywhere else in the United States, they are legal tender. It is considered dishonourable to offer them, and the thing is rarely done.

Lumbering is carried on in the Nevada Mountains, and it was a cure for Canadian eyes to see some trees of magnitude, the first that presented themselves since leaving the state of Michigan. The timber

is pine, spruce, and cedar. Here also we witnessed hydraulic mining, and for this purpose water is carried along in wooden boxes by the side of the mountains for many miles. The fall given to the water in this way causes an immense pressure, and when it is directed from a four or six-inch nozzle, has the power to bore a hole in the hardest cement, and carries the dirt into a sluice, in which the bottom is generally composed of sections of trees about six inches thick. These do not fit closely, but the crevices between contain quicksilver, so that as the water dissolves the dirt, the gold falls to the bottom and is caught—the dirt and stones being forced away by the flow of water. At Cape Hour we looked down as straight as possible from the car windows, and saw the Canyon River 1400 feet below us. We passed over many trestle bridges, whose creaking and groaning were sometimes such as to make a timid person fear.

Emerging from the mountains, we gradually found ourselves entering the great Sacramento Valley, and the fruitfulness of the soil became apparent from the large quantities of grapes, pears, peaches, apples, etc., that were offered for sale at the stations and on the cars. At Colfax station, a German young woman who journeyed in our car was met by a middle-aged man from Grass Valley, who was going to make her his bride. He brought with him an offering of fruit, a portion of which present the lady distributed around among her travelling companions. It fell to my lot to receive, among other appreciable samples, a good, sound, and well-flavoured apple, measuring about eighteen inches in circumference. I took it as a presage of the plenty with which I was to be blessed in my new abode. Grass Valley is a particularly luxuriant spot, thirteen miles from the railroad at Colfax; and I have frequently heard it mentioned since as a very productive place.

Sacramento, the capital of California, was reached some time about mid-day, and by the time we got there we were well convinced that among the many bounties that nature had showered upon the Golden State, drought and dust were to be counted in. The valleys looked liked parchment, and the hills as if peeled of their outer covering. In the midst of vineyards, orchards, gardens, nurseries, and grazing grounds, nothing was perceptible but a yellow surface, whether in particles of dust or bleached grass and stubbles. About eighteen miles from Sacramento is the junction of the California and Oregon Railroad with the Central Pacific. This road runs northward towards Oregon, but how far I do not now know.

Passing over the Long Bridge, a trestle structure, 5,145 feet long, we entered the city of Sacramento, the capital of the State. It has a population of 30,000, and is rapidly increasing. It has suffered much from the inundation of its muddy river; but an esplanade is now built that will protect it from similar visitations in the future. It is built for the greater part of wood, and has broad avenues running at right angles; but it appeared to me that, while covered with dust in the summer, it must be immersed in mud in winter. The temperature is much warmer than that of San Francisco, and it enjoys the luxuries of heat and dust combined. The dome of the State Capitol is a

conspicuous object in passing by. Here I will revert to two features in my narrative that I have passed over until now, and are more peuliar to the Pacific States—I mean Chinese and windmills. The former we had encountered as far back as Utah, as they were employed along the line keeping the road in repair, but coming down the Nevada mountains they were visible in large numbers, getting on and leaving the train. There they were, with their shaven heads and faces tawny, and their long ques hanging down their backs. The covering of their heads varied; but all wore the same blue blouse and wooden canoe-like shoes. I noticed one of them attempt to take a seat alongside of an Irishman from the mines, but who repulsed him unceremoniously, and told him to "go away, for a haythen." "John," as he is universally called, seems to excite the same aversion among my countrymen here as the negro does in the North. It must be said for the Chinaman that, although a rat eater and vermin destroyer generally, he is almost up to the Prussian in education. It was a sight to see a lot of them along the Sacramento River, at the city, washing clothes, just as they were depicted in a New York illustrated paper a short time since.

I am digressing, however, and must leave Wo-Hing and Gim-Lee for a special dissertation on some other day. The windmills are everywhere visible in the valleys, and are used for irrigation. Water is abundant in the bosom of the earth below if not in the sky above, and the windmills supply the power by which it is pumped to the surface. The valley of the Sacramento is very level, and extends westward to the coast range of mountains. The unbroken ground looks like a vast orchard, being dotted in a striking manner with short, spreading oak trees, as if planted by the hand of man. The distance of Sacramento from San Francisco is 138 miles. Stockton, also on the line, is a city of 12,000 inhabitants, and the third in population. It is remarkable for being the site of the State Lunatic Asylum and the great number of its windmills; distance about ninety miles. At Niles a junction takes place in the road in order to encircle the Bay of San Francisco by rail, but the Central Pacific road continues on to Oakland, a very handsome town of about 10,000 inhabitants, opposite San Francisco, on the same bay. Here the road continues into the bay on a very long wharf built for the purpose, on account of the shallowness of the water. At the end of it we bade good bye to the cars, and proceeded on board a large ferry boat, which soon brought us in sight of the Golden Gate and landed us at the great city of the future, San Francisco, about six o'clock in the evening. On the way across we passed a very high island called Yerba Buena, or Goat Island, and received a good idea of the kind of zephyrs that enter the city by the promontories which constitute the Golden Gate. From the bay the appearance of San Francisco is not prepossessing, but a full description of it will be the subject of my next.

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## Navigation of the Pacific Ocean: *The Samoa Group.*

(From the New Zealand Herald, June 14th.)

Mr. Editor—Finding that the new postal route via San Francisco to Europe is an established fact, and the route taken by the mail steamers goes through the centre of the Pacific Ocean, skirting the Navigator's Group, or, as the natives call it, Samoa, I beg to offer a few remarks relative to these parts that may be of use to the captains of the mail steamers. I may preface my remarks by saying, that I was born, and grew up to manhood in the Pacific, and have filled official situations as H.B.M.'s Consul for Samoa for a while, and I have navigated the same parts time after time.

The first I will mention is the Tonga Group, consisting of the Tonga Islands, the Haapais, and Vavou. Tonga and the Haapai Islands are low islands; Vavou is high. The mail steamers no doubt pass to the eastward of this group, for the seas to the S.W., W., and N.W. are dotted with innumerable shoals and reefs just awash, with a strong set of the current to W.N.W. Between Ono and Tonga it is especially dangerous. There are no dangers to the eastward of them—a clear open sea and plenty of room, except to the S.E. of Vavou, where there is a large sunken reef with the land just visible. The S.E., E., and N.E. being to the weather side of this group, they act as a barrier to the force of the sea, caused by the prevailing winds, thereby producing a quiet sea to leeward or westward, which has allowed the coral builders to build up reefs that are dangerous to navigators. Also in 1853 and 1856, earthquakes sent up shoals and islands, and flame and smoke broke out afresh in some of the hilly peaks that rise perpendicularly from the deep sea to 1,000 and some 1,700 feet high above the sea. Tonga has a large reef harbour, entered by a deep passage at the west end of the island outside the reef; the entrance is a long way from the anchorage. Vavou has a large land-locked harbour, entered from the southward between two small high and round islands, with soundings inside the harbour of sixty and forty fathoms. Should the mail boats ever be damaged in their machinery or hull near to the Tonga Group, the harbours are of easy access, and safe except in a hurricane. The trade is principally in the hands of the Sydney merchants.

Between Tonga and Samoa there is only one island, called by Captain Cook Savage Island; it has a bold and weather-bound shore with no dangers.

The Samoan Group is high and mountainous. I have seen Savaii peak (a crater of a volcano, without shrub or tree, a mass of lava) eighty miles off, on a clear morning before nine. No reefs away outside of this group: clear open sea and channels. There is a fishing bank to the north of Upolu, the land visible in a canoe, where the natives used to go to fish in former times, for baracouta and bonito, but the soundings are over 100 fathoms. The Samoan Group being so

near, in fact, in the line of route, would make a good coaling station, giving the steamer more room for freight. The port of Apia, on the north side of Upolu, is the principal harbour, and contains a large white population, and a good-sized town. It is of easy access and egress; good holding ground. Pangopago (pango pango in the New Zealand dialect) is a land-locked harbour, with deep water in many places to the very edge of the land, so that a vessel can lay alongside. It has a sunken pinnacle rock just inside of the entrance, which narrows the passage, and one must be well acquainted with its situation to venture in at night in a large vessel, more so in a gale of wind. There is also a shoal patch, with limestone boulders, on which the sea breaks in a gale of wind. It is in the fairway in running in from the S.E. In coaling at Apia a hulk would be required, as a large vessel cannot get near to the wharf, for the harbour gradually shoals towards the beach. A good coaling station could be built on the inner shore of the weather reef of the harbour, that would be strong enough to resist the waves of a hurricane, and deep water to float any vessel, which can easily run out in a hurricane, whereas in Pangopago you cannot. I have been in the latter port in a hurricane, with the furious puffs coming down on the vessel from all directions, causing her while at anchor to heel over till the water came in at the scuppers, first one side and then the other, and was thus playing shuttle-cock with her. The only advantage Pangopago has is that a coaling station can be built cheap, whereas at Apia, it would cost money. It would be cheaper to lose a few coals than a steamer. I hope for no such misfortune, but prosperity to the company. Saluafata is another port in Upolu, a few miles to the eastward of Apia, with deep water close to the land, as easy in going in and out, but smaller, though still plenty of room for twenty vessels to lay to their anchors.

To the N.E. of Samoa is Danger Island, and it is a dangerous island. It is low, and surrounded for some miles out to sea with detached reefs, with no sign but the surf breaking over them. There is here a strong current setting to the westward. In a calm I have been taken fifty miles to the westward in twenty-four hours. A sailing vessel is doomed in calm weather if she should get inside the outer ring of the detached reefs. It was here the missionary ship *John Williams*, the first, was lost—becalmed. If a steamer should be caught in a hurricane 100 miles to the N.E. or E. of it, and obliged to heave-to for several days, it would be a wonder if she escaped shipwreck. The same can be said of Christmas Island. To the north of the Line a strong current also sets to the westward. Many a vessel has been wrecked here on the passage from California to the Australian ports in the time of the diggings. The prevailing winds are the trades from S.S.E. At the full of the moon, or at new moon, in the winter months, I have known a westerly wind for three or four days. Except in a hurricane, the days and the weather are as fine as could be desired, and the voyage as pleasant as yachting.

The hurricane months are from December to the middle of April. The terrific hurricanes are few and far between. The hurricanes take

their rise in the Southern Pacific, from the S.E., and make a circular course in the Pacific. Say that a hurricane was passing over Rarotonga and its neighbourhood, it would sweep round and over to Samoa; then veering gradually to the westward, pass on through the New Hebrides, here turning to the south again. If it should set in to the east of Rarotonga, it would sweep up through Manabiki, on to Danger Island, and perhaps the Line, and round by Bank's Island. If one from Tonga, it will pass round and over the Fiji Group, on to Norfolk Island and Sydney coast (vide report of Southern Cross, Novelty, and others, all the same wind). If rising to eastward of Tonga it may just clear the west of Samoa, touch Rotumah, south of the New Hebrides Group, New Caledonia, and on to Sydney coast. Some of the hurricanes are of great breadth, some are very narrow, but make a wide circle. Once I had one in Tonga; in a week I was off Suwarrow's Reef in another one, and it veering round to Danger Island. With plenty of sea room, and a good vessel, you will generally outride the storm. Some hurricanes give plenty of warning, others do not. Should the hurricanes break out in December or January, they are not so severe as those that come about March and April. If any hurricanes pass over in December, the later ones in March are nothing to speak of. Should there be no heavy gales in December, or January, look out for them in March; watch the barometer; hot sultry weather; heavy rolling sea from south or east, as it may be coming down on you; a few hot, sultry nights, with no dew, is a sure indication.

The trade of the Samoan Group is in the hands of English and German merchants in England. Three or four large vessels every year come out with goods, and go home with return freights in cotton, oil, etc.—I am, etc.,

GEORGE PRITCHARD.

Waikato, May 14th, 1870.

*The Outbreak in Samoa.*—A more recent Melbourne *Herald* says—A gentleman who lived for a considerable period on the island has furnished us with the following information concerning the origin of the late outbreak at Samoa:—"The present contention is confined to the four islands, Upolu, Manona, Apolima, and Savii. The other four islands of the group that are inhabited are so far away from the scene of strife that their population are unaffected by the dispute, and have as yet taken no part in the disturbance. Upolu contains 18,000, Savii 12,000, Manono 1,000, and Apolima about 300 inhabitants. The dispute that has caused the war arose about three years ago, when the then Malietoa died. It is erroneously believed that this dignitary is King of Samoa. There never was such a personage.

"The islands are divided into three districts, named Atua, Tuamasang, and Anna. These districts are governed each by a separate chief, who is called Tui, which means king. But there is another and a higher title, which is Malietoa, and this is given to the chief who is most respected by the other chiefs. The chosen Malietoa governs the district of Tuamasang, the most important of the three. The title

gives him no further power, but entitles him to the highest regard. Hitherto, the Malietoa has been unanimously elected by the chiefs for his superior qualities, and some years ago the chief who bore the title was so beloved, that he was offered the other two offices of Tui Atua and Tui Anua, but he declined the honour. The possession of the three honours would entitle the wearer to bear the name of King of Samoa; but, as we previously mentioned, no one has as yet actually borne that distinction.

"The present dispute is not as to this dignity, but is simply connected with the title Malietoa. We may state that no title is hereditary in Samoa. The people elect their chiefs, and the chiefs of each district select one from among themselves as Tui; then the chiefs of the three districts combine to elect the Malietoa. At the decease of the last Malietoa, one faction wished to have his brother Maleoka placed in the vacant position, while another party desired that Le Pepê, the son of a Malietoa, should succeed to the honour—not only as a mark of respect to himself, but also to further show the appreciation in which his father had been held. These have another objection against Maleoka, who is an old man, while Le Pepé is in the vigour of his manhood, which is, that although his brother had been respected by a majority of the chiefs, yet a large number did not hold him in great esteem. Both parties were firm, and neither would give way, hence the war that has been commenced so determinedly. Maleoka was the first to commence hostilities, and the particulars of his onslaught have already appeared in our columns. The inhabitants of Manono, only a thousand in number, are the bravest of the entire people, and have hitherto been unconquerable. These consider themselves to be the legal protectors of the Malietoa, and have identified themselves with the cause of young Le Pepé, and, although their party are by far the smallest, they are determined to fight to the last. The Manono islanders are nearly all chiefs; they are, in fact, the nobles of the group, and their courage is so great and undying that they will never give way. Maleoka has threatened their utter destruction if they resist him, and as they will fight to death, a long and devastating war may be anticipated, especially if the inhabitants of the more distant islands are brought into it."

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## THE SANDWICH ISLANDS.

[THE following substance of a discourse delivered by the Rev. T. C. Damon, D.D., at Owhyhee, on the occasion of completing the fiftieth anniversary of the labours of the missionaries at the Sandwich Islands, contains so much historical allusion, that we are induced to preserve it among the final papers of this series of the *Nautical Magazine*.]

RESULTS of vast moment often flow from apparently trifling causes.

Events of seemingly small importance in the view of those witnessing them, assume enlarged proportions when viewed through the medium of the historic past. Many events in the early history of the Hawaiian Islands most forcibly and remarkably illustrate this assertion. Gathered on this Jubilee Anniversary—fifty years removed from the time when the Pioneers of the American Mission landed on the shores of Hawaii—the past history of the mission and the nation rises to our view. It is all embraced within a single century. Eight years must roll away ere the time will come for us to celebrate the Centennial Anniversary of the discovery of the Islands by Captain Cook. If so inclined, it is impossible to range abroad through the many centuries that have rolled away since the establishment of other nations and kingdoms, unless we adventure forth on that pre-historic period when the inhabitants of the Hawaiian Islands, and other Islands of Polynesia, dwelt apart and isolated from all the other nations of the earth. There is much, even in that pre-historic era, most inviting to the thoughtful historian, searching antiquarian, and studious archæologist. It is the opinion of some, that two centuries prior to the discovery of the Islands by Captain Cook, they were visited by Spanish navigators. This opinion is not merely one of fancy, but founded upon a tolerably well-sustained tradition, that many generations previous to Kamehameha I., during the reign of one Kahoukapa, or Kiana, or Umi, a Catholic priest and some Spanish seamen were wrecked upon the shores of Hawaii; that they intermarried among the Aborigines; and, furthermore, that their descendants lived for generations, even down to the present time. In this way, it is conjectured that the Hawaiians received a certain moral elevation, lifting them above most of the other inhabitants of Polynesia. Such a theory is not irrational, for Spanish navigators were crossing and re-crossing the Pacific from the sixteenth century, and the Spanish records, at Manilla, contain notices of these Islands as early as 1555, or 233 years before Captain Cook visited these shores.

It is a most interesting study to trace the migration of tribes and nations, from the earliest recorded period in the history of the human race; hence, the most savage and barbarous assume equal importance with the most refined and civilized, in the eye of the profound and philosophic historian. Sufficient for our present purpose is it to consider the fact that less than one hundred years ago, there was discovered an Aboriginal population upon these Islands, living in utter heathenism and idolatry. Taking the most favourable view of their social, moral and religious state and condition, they needed to have diffused among them the civilizing, elevating, and saving truths of the Gospel. From the tragic circumstances attending the death of the great English navigator, at Kealakekua Bay, and the reports of early visitors, the reading world was led to entertain a far less favourable view of Hawaiians than their character and state really merited. We think the great French navigator, La Perouse, was sadly at fault in thus depicting Hawaiian character, "The most daring rascals of Europe are less hypocritical than these natives. All their caresses are false.

Their physiognomy does not express a single sentiment of truth. The person most to be suspected is he who has just received a present, or who appears to be most in earnest in rendering a thousand little services." This description is the very reverse of what we must consider as the truth.

During the forty-two years after the Islands were discovered by Cook, or during a longer period than one whole generation, the inhabitants of these Islands lived and died unvisited by Gospel Missionaries, or unblessed with the light of Divine Revelation. The hand on the dial-plate of time, was pointing to the hour for the Hawaiian people to cast aside their superstitions and idolatry, and to pass into a new form of being.

The introduction of Christianity among the inhabitants of any nation, savage, semi-civilized, or civilized, is a great event. The case of the Hawaiians forms no exception to this remark. It has appeared becoming to commemorate this event by a Jubilee gathering, and other anniversary meetings and exercises. Before calling your attention to those scenes attending the first preaching of the Gospel and the landing of the Missionaries, it appears to me highly proper to notice those preparations which God, in His Providence, had made for the establishment of Christianity upon these Islands. The way of the Lord must be prepared. In a careful review of the history of the Hawaiian nation previous to 1820, I think there are three great and leading events which prepared the way for the new order of things, viz.: The conquest of the Islands by Kamehameha I., and the consolidation of the government under one ruler; the visit to the United States of Obookiah and his Hawaiian associates, Thomas Hopu and others; the abolition of idolatry, and the utter renunciation of the old tabu system. These three events, I deem of vast moment, if a person would take a clear, calm, and philosophical view of the great event which we are gathered to commemorate. The Hawaiians were led through a period of forty years' wanderings, even after their existence was known to the civilized world, before they were permitted to enter the Laad of Promise. I will now briefly call your attention to these events.

When these Islands were discovered, independent kings reigned on each island of the group. They were a fierce and warlike people, and not unfrequently the most bloody and devastating wars prevailed. —[Vol. 1, p. 188, Vancouver's Voyages.] Kamehameha I. was a man of marked character. He was a bold warrior, an ambitious conqueror, and possessed of great administrative ability. His conquests, wars, and management of governmental concerns during the times of peace, all proclaim him to be a ruler of no ordinary type. He was a contemporary of the great Napoleon, and his career has won for him the title of the "Napoleon of the Pacific." From a careful review of his life, I do not regard this title as unmeritoriously conferred. Originally, he governed only a small district of Hawaii. Soon after commencing his conquests, the whole of that Island fell under his sway. Then followed the subjugation of Maui, Lanai,

Molokai, and Oahu. The battle which resulted in the conquest of this Island took place about three miles up Nuuanu Valley. When victory perched upon the banners of Kamehameha, his enemies fled, while not a few were driven over the Pali, and their wounded bodies dashed to pieces. This event occurred in the winter or spring of 1795. Great preparations were then made for the conquest of Kauai. Some years elapsed before this was accomplished. So extensive and well arranged were his final preparations,—including an army of 7,000 warriors, a fleet of twenty-one schooners, forty swivels, six mortars, and an abundance of ammunition—that the King of Kauai wisely concluded that discretion was the better part of valour, and quietly submitted. This was brought about soon after the opening of the nineteenth century. Then followed years of peace, when Kamehameha ruled the whole group. Like other conquerors—the Alexanders and Napoleons, —Kamehameha sighed for other islands to conquer, and history, as well as tradition, reports that he once contemplated the conquest of Tahiti. Then was established the Kamehameha dynasty, and for seventy years it has stood as firmly, and exercised its functions as efficiently for the welfare of the people of these Islands, as that of any other government on earth. A glance at other nations would disclose the existence of wars, turmoils and revolutions, far more disastrous than have existed here during the past seventy years. I do not hesitate to regard the establishment of a regularly ordered and firmly administered government, although despotic, by Kamehameha I., as a very necessary and important step towards the successful spread of the Christian religion, when the time came for the arrival of the American Mission.

The next step preparatory to the introduction of Christianity, was the visit of Obookiah and his associates to the United States. He was born on Hawaii, in 1792, the very year of Vancouver's visit to that Island. It has been reported by some, that Vancouver was instructed by Kamehameha I. to send missionaries from England to these Islands, but the project failed from causes now unknown. The visit of that great English navigator has ever been regarded as among the memorable events in the early history of these Islands, but that was of trifling moment compared with the influence which Obookiah and his associates exerted in behalf of this kingdom and people.

He was educated for a priest, to an idol temple, but the Great Ruler of nations led him to forsake his home, embark on board an American ship, by which he reached the United States, in 1809. Through a series of providences, he visits New Haven and is brought under the notice of young students of Yale College. The arrival of Obookiah led the Rev. S. J. Mills, Jun., thus to write to his friend, Gordon Hall. "What does this mean? brother Hall, do you understand it? Shall he be sent back unsupported to reclaim his countrymen? Shall we not rather consider these Southern Islands a proper place for the establishment of a mission?" This is the first allusion to the subject of a Christian mission to the Islands, which I have met with in any American publication.—Memoir, page 50.] His subsequent career for

ten years was identified with the Cornwall Foreign Mission school, in Connecticut, and with efforts to awaken an interest in behalf of the Hawaiian Islands as a mission field. Persons who have not carefully reviewed the rise of the Foreign Missionary enterprise in New England, from 1810 to 1820, can with difficulty realise how prominently Obookiah stood before the religious community in America. He travelled through the New England States addressing large assemblies. His name became as familiarly known among the churches as that of the most prominent minister of the Gospel. Other Hawaiians were also educated at the Cornwall school—viz., Thomas Hopu, William Tenhnooe, and George Kaumaalii. These returned with the first company of missionaries, but that privilege was not granted to Obookiah, who died on the 17th of February, 1818, while a member of the Foreign Mission School. "It was," remarks the Rev. Dr. Spring, of New York, "from this school that the mission emanated to the Sandwich Islands." The mission having been inaugurated, the pioneers embarked in the following year, October 15th, 1819, on board the brig *Thaddeus*, at Boston. While the vessel was on her passage hither, transactions of vast moment were transpiring at these Islands.

I shall now speak of the destruction of idolatry and the abolition of the Tabu system. This is one of the most remarkable events not only in the history of the Hawaiians, but of the world. It is without a parallel, either in ancient or modern times. It was altogether an unheard of event in the history of idolatrous nations, for any one to cast aside its idols, unless others were adopted in their place, or their idols were cast aside for the people to embrace Christianity. Hawaiians cast aside theirs, and did not take others in their place, nor were influenced thereto by the messengers of Gospel truth, for as yet the missionaries had not landed on these shores, and it was not known that they were on their voyage hither. "Hath a nation changed their gods, which are as yet no gods?" asks the prophet Jeremiah. He did not ask, "Hath a nation cast aside their gods?" Here was a heathen and savage nation, without a written language and far removed and isolated from all the other nations of the earth, which was led by some mysterious influence to engage in a transaction totally unlike any other upon the world's records, "History repeats itself," is the oft-quoted saying, but in this instance history presents no parallel.

Viewing the subject from a purely historical stand-point, without reference to a Divine influence, why were the Hawaiians led to abolish their Tabu-system and cast their "idols to the moles and bats?" I will mention the following among the causes contributing to this unlooked for result.

*First*—Reports of the abolition of idolatry at Tahiti, had reached these islands and circulated among the people.

*Secondly*—Foreigners from Christian lands had settled upon the islands, and although most of them were utterly regardless of Christianity themselves, yet they did not hesitate to denounce idolatry and the Tabu system.

*Thirdly.*—The inhabitants had become convinced of the utter vanity of idolatry. In the very first communication written by the Missionaries to their patrons in Boston, and dated, the day after their landing on the shores of Hawaii, I find this statement:—

"The sight of these children of nature, drew tears from eyes that did not intend to weep. Of them we enquired, whether they had heard anything of Jehovah, who made Owhyhee and all things? They replied that Rehoreho the king had heard of the great God of the white men, and spoken of Him; and that all the chiefs but one had agreed to destroy their idols, *because they were convinced that they could do no good since they could not save the king. Idol worship is therefore prohibited and the priesthood entirely abolished. Sing, O heavens, for the Lord hath done it.*"

Reference was here made to the King Kamehameha, who died May 8th, 1819, and idolatry was abolished the next November, the month following the embarkation of the Missionaries from Boston. Perhaps another reason may be assigned, in addition to the foregoing, before I speak of that Divine Power and influence, which it becomes us to recognize in this most remarkable transaction. The people, both chiefs and common people, had become heartily wearied and tired of the system. It was burdensome, offensive, cruel, and absurd. But what is most remarkable, Hewahewa, the high priest of the idolatrous system, was led to be the very first to light the torch which should burn the nation's idols. Unless he had led the van in the rabble of iconoclasts, or idol destroyers, it is doubtful whether the project would have been carried through. "The tabu is broken—burn the idols!" was the watchword that started at Kailua, Hawaii, and was repeated to the limits of the Kingdom.

I have now taken the naturalistic, or the human view of this wonderful event. But are we not justified in the introduction of a superhuman and Divine influence, in bringing about this unlooked for result. At the period when this event occurred, all Christian Missionaries and writers, did not hesitate to recognize a Divine influence. All the Missionary and Religious publications of that period, abound with expressions of acknowledgment to a Divine Providence. The God of Missions—the Great Head of the Church—was every where recognised as having prepared the way for the introduction of the gospel among Hawaiians. Ancient Hebrew prophets had foretold, "The isles shall wait for His law." Could there be a more complete and exact fulfilment of this prophecy of Isaiah?

The American Minister, Mr. Bancroft, at Berlin, who is acknowledged as one of the most calm and philosophical of historical writers, of this or any age, remarks:

"Sometimes, like a messenger through the thick darkness of night, Omnipotence steps along mysterious ways; but when *the hour strikes* for a people or mankind to pass into a new form of being, unseen hands draw the bolts from the gates of futurity; an all-subduing influence prepares the minds of men for the coming revolution; those who plan resistance find themselves in conflict with the will of

Providence rather than with human desires; and all hearts and all understandings, most of all the opinions and influence of the unwilling, are wonderfully attracted, and compelled to bear forward the change, which becomes more and more an obedience to the law of universal nature than submission to the arbitrements of man."

How forcibly and aptly this paragraph describes the event now under consideration. If the philosophic historian had been writing upon this special subject, he could not have employed more fitting and felicitous language. *The hour had struck* for the Hawaiian people to pass into a new form of being. Internal agencies, and foreign influences, were contributing to this result, and through those agencies and influences, how clearly may be traced the first fruits, as "Omnipotence steps along mysterious ways, and unseen hands draw the bolts from the gates of futurity." No wonder the enthusiastic Puritan Missionaries were wonder-struck as they listened to the report: "*Kamehameha is dead—his son Liholiho is King—the tabus are abolished—the images are destroyed—the heiaus of idolatrous worship are burned, and the party that attempted to restore them by force of arms, has recently been vanquished.*" In view of this event let no one be surprised at Bingham's language. "The hand of God! how visible in thus beginning to answer the prayer of his people for the Hawaiian race!"

> "In the wilderness prepare ye the way of the Lord,
> Make straight in the desert, a highway for our God."

Attempts have been made in a review of universal history, to find some parallel to this unprecedented conduct of the high priest Hewahewa, lighting the torch to kindle the flames which should destroy the idols of Hawaii. The nearest approach is that precedent, cited by Mr. Manley Hopkins in his history of Hawaii, when Paulinus went as a Missionary to Britain in the days of Edwin of Northumbria. The King had embraced Christianity, and he then exclaimed "who shall first desecrate the altars and temples?" "I," answered the high priest, "for who more fit than myself through the wisdom which the true God hath given me, to destroy for the good example of others, what in foolishness I worshipped?" There is one essential point wherein the parallel fails. The old British high priest of idolatry acknowledges, that he had been enlightened by wisdom from the true God. Hewahewa, however rushed forth to his work of destruction, ere the messengers of Jehovah had landed upon Hawaiian shores.

This is a point of so much interest, I trust I shall be pardoned for still dwelling upon the mysterious conduct of Hewahewa. He welcomed the missionaries as "*brother priests.*" He assured them that he would be their friend. About four months before their arrival, the young King, after the death of his father, consulted him respecting the expediency of breaking *tabu*. He replied, that it would be "maikai," adding, that "he knew there was but one *Akua* who is in heaven, and that their wooden gods could not save them or do them any good." "I knew," he adds, "that the wooden images of our deities, carved

by our own hands, were incapable of supplying our wants, but I worshipped them because it was the custom of our fathers; they made not the *kalo* to grow, nor sent us rain; neither did they bestow life and health. My thought has always been, Akahi wale no Akua-nui iloko o ka lani—there is only one great God dwelling in the heavens."

Here are facts for the thoughtful consideration of the historian, philosopher, and theologian.

We have now arrived at a point in our historical review, when it is fitting we should carefully consider the special event which gives significance to this Jubilee Day. The Anniversary of the landing of the Pioneer Missionaries occurs on the 30th of March. The brig *Thaddeus*, after a long voyage of more than five months approached the shores of Hawaii. The day and occasion is thus alluded to, in the first communication from the Missionaries addressed to the Secretaries of the Board:

"Let us thank God and take courage. Early this morning the long looked for Owhyhee, and the cloud-capt and snow-capt Mauna Kea, appeared in view to the joy of the little company on board.

* * "Eleven o'clock a.m., we are coasting along the northern part of the island so near the shore as to see the numerous habitations, cultivated fields, rising smoke in different directions, fresh vegetation, rocks, rivulets, cascades, trees, etc., and by the help of glasses, men and women—immortal beings purchased with redeeming blood. We are pleased not to say delighted with the scene. * * At four p.m., we double the northern extremity of Owhyhee. The lofty heights of Mowee rise on the right. As no canoes approach us, it is supposed to be a special season of *tabu*, and that all the people are employed in its observance. Captain Blanchard has concluded to send a boat to make inquiries respecting the king and the state of the island. Mr. Hunewell one of the mates, Hopoo, John Honoree, and others have gone on this errand, and we wait with anxious expectation for the first intelligence from the island. Seven p.m.—The boat has returned, having fallen in with a number of fishermen near the shore. They report the remarkable revolution in the idolatrous and political condition of the Island-Kingdom." From the same document we quote as follows, "The moment seems favourable for the introduction of Christianity, and the customs of civilized life, and our hopes that these will be joyfully welcomed are greatly strengthened. There is some reason to fear that the Government is not settled on the firmest basis, and that there is less of stability and sobriety in the present king, than in his father. Whatever may be his moral character and habits, we believe that three important particulars may with some confidence be relied upon:—1st, That he is specially desirous of improvement in learning, 2nd, That he has long been indifferent to idol worship, 3rd, That he is not unfriendly to the whites. Our hearts do rejoice, though we are disappointed in not being allowed to preach Christ to that venerable chief who has so long and so ably governed this people." On the following day some of the missionaries landed at Kawaihae Bay, and there the brig remained at anchor until Monday, the 3rd of April.

The first Sabbath was spent at Kawaihae, where the Rev. Mr. Bingham preached from the text, "The isles shall wait for His law," Is. xlii. 4. During that week the vessel proceeded to Kailua, where they all landed, and where there was much intercourse between king, chiefs, people, and the newly arrived missionaries. Thus commenced the first Christian Mission to the Hawaiian Islands from America.

The event is the most memorable in our island history from their discovery to the present time. We have gathered to commemorate the transaction, and many of our exercises during the current week have been planned with reference to the same event. It merits to be kept in perpetual remembrance. It synchronizes with another great event which Americans and New Englanders especially delight to commemorate. I refer to the landing of the Pilgrims, on Plymouth Rock, in 1620. This year is to be celebrated the fifth Jubilee of that great and ever memorable event. The note of preparation has already been sounded. When on my way recently across the American Continent I spent a day at Chicago, fortunately it fell on the 27th of April, when there were gathered hundreds of Puritan Ministers and people in that city, to make the necessary preparations for more extensive gatherings to be held the coming autumn throughout America, by the descendants of the Pilgrims and the Puritans of New England, scattered from the Atlantic to the Pacific. It is quite noteworthy that these two great events should thus synchronize. It was fitting that the two hundredth anniversary of the landing of the Pilgrims from the *May Flower*, should be celebrated by the sailing of the *Thaddeus* from Boston, with the Pioneer band of Puritan missionaries to the shores of Hawaii. During the very year that Daniel Webster uttered the sonorous paragraphs of his immortal discourse on the "First settlement of New England, at Plymouth," on the 22nd December, 1820, the Brig *Thaddeus* was ploughing her way around Cape Horn, on an errand equally grand with that which two centuries before guided the *May Flower* from the shores of Old to New England. Says Bancroft, "A grateful posterity has marked the rock which received the Pilgrims' foot-steps." Shall not an equally grateful posterity mark the lava-rock of Kailus, which first received the American Pioneer Missionaries on the shores of Hawaii? Says Bancroft, "In the cabin of the *May Flower* humanity recovered its rights, and instituted government on the basis of 'equal laws' for the 'general good.'" May we not add, that in the cabin of the *Thaddeus* Christianity, as embodied in the belief of the Pilgrims, was on its way to Hawaii for the recovery and salvation of a portion of Adam's lost race. Did not the *Thaddeus* follow in the *May Flower's* wake? And has not the *Morning Star* followed in the wake of the *Thaddeus?* What lover of Zion, what friend of Missions and humanity, will not delight through all coming time, to read the story and trace the history of the voyages made by these vessels.

> "Charged with a freight transcending in its worth,
> The gems of India, Nature's rarest birth,
> Each flew like Gabriel on the Lord's commands,
> A herald of God's love to pagan lands."

Soon after the landing of the pioneer band of Missionaries, stations were taken on Hawaii, Oahu, and Kauai. The King and Chiefs were led to adopt a most liberal and enlightened policy in regard to grants of land and other privileges. The history of no Christian Mission, in ancient or modern times, reveals a more cordial welcome to the messengers of the Gospel. For the most part, that policy has been uniformly continued through the entire half-century which has since elapsed. This was conspicuously apparent when the time came for granting Royal Patents to lands which had been occupied by the Missionaries.

Having become located, the herculean task was undertaken of learning the language, and reducing it to a written form, instructing the ignorant people, printing books, and performing all the multifarious duties incident to a new mission among a heathen people. So much encouraged were the pioneers in their work, and so favourable reports were forwarded to their patrons in America, that in the spring of 1823, a reinforcement arrived. This was followed by a second, in the spring of 1828; a third in 1831; a fourth in 1832; a fifth in 1833; a sixth in 1835; a seventh in 1837; an eighth in 1841; and subsequently, several additional reinforcements came, the last arriving in 1854. The Rev. Dr. Anderson reports, that up to the year 1863, there had arrived forty ordained missionaries, six physicians, twenty lay teachers, and eighty-three female missionaries, all but three wives of missionaries or assistant missionaries. The average period of labour for each clerical missionary then amounted to twenty-one years. The full amount of missionary labour it would be difficult to estimate, but the results appear in the fifty-six Protestant churches gathered in various parts of the group, to which have been admitted no less than 67,000, upon a profession of their faith in Christ; and the total number of children baptized, 19,817. To these statistics, must be added the establishment of common schools, and several of a higher grade: the complete translation and publication of the Bible, besides no small amount of educational, secular, and Christian literature.

The Missionaries not only wrote and translated many scores of books into the Hawaiian language, but they also taught the natives to read. "The schoolmaster was abroad." Not only were the young taught to read and write, but also the old. Those of "three score and ten" were enabled to acquire sufficient knowledge to read the Bible with ease and intelligence. Persons becoming acquainted with the condition of the nation in 1870, can, with difficulty, imagine how great has been the amount of work performed by the Missionaries from the year 1820, during the first half of the fifty years which have since elapsed. Fully to appreciate those labours, the observer must review the nation's history prior to the arrival of those judicial and legal gentlemen who have laboured in conducting this people from their feudal state and system, to the adoption of a Constitutional Monarchy. Coming to these Islands in 1842, I have been peculiarly favoured in observing what has been accomplished. That was the year when Dr. Judd entered the service of the Government, and when the Rev. Mr. Richards

went abroad, accompanied by Mr. Haalelio, on their foreign embassy to Europe and America. I can barely allude to those events in Hawaiian history. Up to that period, the native Government had utterly refused to adopt any system of land-tenure except the old Feudal arrangement. Only a very small code of laws had been enacted, embodied in what has been styled the "Blue Book." Great national changes were in progress.

The amount of work accomplished by the missionaries in Church and State was marvellous. I do not undervalue what has been accomplished during the last quarter of a century by the learned in law and diplomacy, but the missionaries laid for them a foundation upon which to build; and unless that foundation had been successfully laid, never could this Kingdom have been established upon a firm and Constitutional basis. The fact must also be borne in mind, that there were "foes without and foes within," which must be met and resisted. The whole time allotted for this discourse might be fully employed in repeating the narrative of American, French, and English aggressions. The only wonder is that the nation now remains free and independent, when we reflect upon the strong tide of revolution which has raged, and which has swept away the native governments of the Society Islands, New Zealand, Fiji, and other Polynesian groups. While I acknowledge the jealousies of rival Great Powers have had something to do in this matter, I will not ignore the fact, that from 1820 to 1870, the American Missionaries on these islands have uniformly combined to form a strong conservative element to uphold the throne. Democratic or Republican by birth and education, they have rallied for the support of the Hawaiian Government represented by the Kamehameha Dynasty. They came not hither as Democratic Propagandists or Republican Revolutionists.

Whatever individuals may have done or written, one thing is certain, the American Mission to the Hawaiian Islands, at the close of the first half-century of its existence, exhibits a good record with regard to political interference, except for the good of the people, support of the government, and welfare of the nation. The fact is patent, that from the landing of the missionaries to the present time, they have exerted a greater or less influence upon the general policy and administration of the government. I make no attempt to ignore or conceal this fact: but I challenge the world, to show that this influence, direct or indirect, has not been good, salutary, and conservative. I can point to the Bill of Rights, signed by the King on the 7th of June, 1839, as embodying those principles which the missionaries had taught the Rulers of these Islands, and you will find them in harmony with the Magna Charta of England, and the Declaration of American Independence. The document opens thus:—"God has made, of one blood, all nations of men, to dwell on the face of the earth in unity and blessedness. God has also bestowed certain rights alike on all men, and all chiefs, and all people of all lands. These are some of the rights which He has given alike to every man and every chief, namely—life, limb, liberty, the labour of his hands, and the productions of his mind."

In these few and brief sentences, we have the spirit of the "Fifteenth Amendment," approved of by the king and chiefs of the Hawaiian Islands more than thirty years prior to its adoption by the people of the United States.

The Hon. R. C. Wyllie has left his testimony upon record, that so eminently judicious, wise and salutary were the instructions of the missionaries, as given to the rulers, that he pronounced them "worthy to be printed in letters of gold, and hung up in the house of nobles, as a guide to their legislation."

On the 27th of April, 1846, a code of laws was adopted, more full and complete than had been previously enacted. One or two, relating to religious matters, are worthy of notice:

1. "The religion of the Lord Jesus Christ shall continue to be the established national religion of the Hawaiian Islands. The Laws of Kamehameha II. orally proclaimed, abolishing all idol worship and ancient heathenish customs, are hereby contained in force, etc.

2. "Although the Protestant religion is the religion of the government, as heretofore proclaimed, nothing in the last preceding section shall be construed as requiring any particular form of worship, neither is anything therein contained to be construed as connecting the ecclesiastical with the body politic. All men residing in this kingdom shall be allowed freely to worship the God of the Christian Bible according to the dictates of their own consciences, and the sacred privileges shall never be imposed upon."

I deem the proclamation and establishment of these fundamental principles relating to civil and ecclesiastical affairs in this heart of the Pacific, as a subject of importance, not only as regards the dwellers on these shores throughout all coming time, but also as having a most important bearing upon those nations in alliance with these Islands, but inhabiting the shores of America, on the east, and of Asia, on the west. There was a period, in pre-historic ages, when the inhabitants of these islands dwelt isolated and alone. That period has come to an end. Most providentially just prior to that most critical period in the world's history, when the western shores of North America came under the sway of the government of the United States, and European nations were opening the ports of China, and America those of Japan, to the commerce of the world, the Christian religion, after a Protestant type and form, was established among the inhabitants of the Hawaiian Islands. A brief glance at the rapidly opening up of channels of trade and commerce throughout the Pacific during the last half century, together with a review of the political changes which have been taking place among all those nations dwelling along the western shores of South and North America, the eastern shores of Asia, and all the "Isles of the sea," will surely convince the impartial observer that the great Ruler of the universe has been marshalling the nations, and assigning to each his position, while, at the same time, the same glorious Being, as the Head of the Church of Christ, came with the pioneer missionaries to these Islands in 1820, in accordance with our Saviour's last words, ere

He ascended up to Heaven from the summit of Mount Olivet: "Lo, I am with you always even unto the end of the world."

As the Book of Divine Providence is now opening, the most superficial reader may learn, that the establishment of the Christian religion, in the heart of the Pacific, had reference not merely to the passing generation of Hawaiians, but was also to benefit all coming generations of peoples upon Hawaiian shores from whatever part of the world they might come, whether from Europe, America, or Asia. I cannot refrain from calling your attention, at this point, to some remarks of the Hon. W. H. Seward, in the Senate of the United States on the 29th of July, 1852, "on the commerce of the Pacific Ocean." At that early date, he foresaw what we are now witnessing, the occidental and Oriental shaking hands on the Hawaiian shores,—the sons of Shem, meeting the sons of Japhet in the mid Pacific, where we now stand, Mr. Seaward, remarks:—"Even the discovery of this continent and its islands, and the organization of society and government upon them, grand and important as these events have been, were but conditional, preliminary and auxiliary to the more sublime result now in the act of consummation—the reunion of the two civilizations, which, parting on the plains of Asia four thousand years ago, and travelling ever afterwards in opposite directions around the world, now meet again on the coasts and islands of the Pacific Ocean. Certainly no mere human event of equal dignity and importance has ever occurred upon the earth. It will be followed by the equalization of the condition of society and the restoration of the unity of the human family. Who does not see that henceforth every year European commerce, European politics, European thoughts, and European activity, although actually gaining greater force, and European connections, although actually becoming more intimate, will nevertheless ultimately sink in importance; WHILE THE PACIFIC OCEAN, ITS SHORES, ITS ISLANDS, AND THE VAST REGIONS BEYOND, WILL BECOME THE CHIEF THEATRE OF EVENTS IN THE WORLD'S GREAT HEREAFTER?

Time forbids me to follow out this train of thought, but the fact is apparent, the nations of the earth are now in commotion. Old landmarks and boundary lines have been swept away. It would really appear, as if we were now standing on a mount of vision, with the past and present in view, and were called upon, in God's name, by the prophet Ezekiel, to witness the fulfilment of Scripture prophecy. "I will overturn, overturn, overturn it, and it shall be no more, until he come whose right it is and I will give it him." God is now overturning and revolutionizing the nations, and bringing the ends of the earth together. I have no time, to speculate upon facts passing under our eyes every day. We see walking in our streets, serving in our families, and selling us goods, a people, representing 40,000,000, who are our neighbours. Hereafter they are unquestionably destined to spread over these islands, and out-number other residents as ten to one. By the aid of such facts as are apparent to all, I sometimes glance an eye down the vista of coming years, and I invite you to do the same.

The prospect is most encouraging and overpowering. "No man liveth to himself and no man dieth to himself." We all must take part in this vast movement and struggle of the nations. Little could the pioneer Missionaries and their immediate successors imagine, or foresee, how far-reaching would be the results of their labours. The world has come to regard the landing of the Pilgrims on the rock-bound shores of New England, as one of the great events of the first half of the seventeenth century. As centuries pass away, I am inclined to think that the establishment of Christianity on the Hawaiian Islands, fifty years ago, will be viewed as among the great events, in the first half of the nineteenth century in the world's history. Hereafter, America, China, Japan, and Hawaii, will be brought into more and more intimate relationships. They cannot remain isolated if they would. The neutralizing and harmonizing influence of Christianity is much needed to weld and mould these nations together, and bring them into one brotherhood. Surely a most important step was taken in this work when Christianity found a resting place and a home, among this once heathen people. Hawaii, though small in territory and population, occupies a position of the first importance among the nations of the earth. The successful establishment of Christianity on Hawaiian shores has solved a problem in the scheme of foreign missions to heathen and pagan nations, the important influence of which is now felt in every mission station in Asia and Africa, and the Isles of the sea. It is now no longer deemed visionary and chimerical to undertake the conversion of a heathen nation to Christianity. For look, say the friends of missions, to what has been achieved at the Hawaiian Islands!

The human agency employed to bring about this grand and glorious result, has been principally the American Board of Foreign Missions, acting through its Missionaries sent to these islands. A most kind Providence permits two of the original Pioneer company to be present on this occasion. Mrs. Thurston and Mrs. Whitney, are with us this evening, and they alone remain of the original Band landing on Hawaiian shores in 1820. They have witnessed the entire change which has taken place between 1820 and 1870. They are competent witnesses, and it is a source of rejoicing that they are inclined to bear their testimony during these Jubilee gatherings. But the fathers of the Mission where are they? They have finished their work and passed onward and upward. Bingham, Whitney, and other names of American Missionaries will ever live in the annals of Hawaiian history. The language employed by the Rev. F. S. Rising respecting the Rev. Mr. Thurston, will apply also to his associates. "The king might well bow before him, and the young do him reverence, as one of the fathers of the Kingdom. When he landed, Kamehameha II. was dwelling in utter heathenism and degradation. When he went hence, Kamehameha V. resided in a stone palace within sound of the church-going bell with every appliance of modern civilization and Christianity about him. Let unbelieving and half-hearted Christian men sneer at Foreign Missions, if they will. One life like that of Asa Thurston, so sublime,

so self-sacrificing, so successful, far outshines any diamond that they can bring from their mines." They found the Hawaiians ignorant and degraded, but with God's blessing resting upon their labours, they elevated the nation to its present position and standing among the nations of the earth. The American Mission to these islands has been a success.

In placing the American Board and its Missionaries, thus in the foreground of the picture, I would not ignore the fact that other agents and persons, in public and private life, have contributed their share. If time permitted, I could speak of Vancouver's good advice, and Lord Byron's wise counsels (cousin of the poet); of the kindly services of Commodore Ap Catesby Jones and several American Naval commanders; of the Rev. W. Ellis, and the visit of Tyreman and Bennett, of the London Mission Society; of the American Seamen Friend Society and its chaplains; of the many Christian shipmasters, merchants, travellers, visitors, and others; and finally, of the kings and rulers of this land, who have exerted their influence on the side of truth, virtue, education, temperance, and Christianity.

The Missionaries and their coadjutors may not have accomplished all that their ardent desires led them to anticipate, or all that zealous writers have represented, but this one fact has been achieved, through their toils and labours accompanied with God's rich blessing, *Christianity has here become firmly established, and from this point, as a centre, Christian Missionaries have been sent to the Marquesian Islands, and Micronesia, while one from among our Chinese population has been raised up to preach the Gospel among his countrymen.*

These facts and a host of others which I might detail, if time permitted, proclaim to the world the grand idea, that Christianity has achieved a glorious triumph on Hawaiian shores, rendering it highly proper, fitting, and becoming that we should commemorate the first landing of the Missionaries fifty years ago, by this Jubilee gathering. We do not thus assemble because the results of Missionaries and philanthropic labour reflect so much honour upon man, or any human agency, as upon God the Great Head of the Church. The work has been God's work. As we have seen, He prepared the way for the introduction of the Christian religion. God's mighty power has ever been recognized and acknowledged. Even the enemies of truth, purity and missions have often been made the unwilling witnesses for true religion. Not unfrequently those who have opposed the mission have been led forward to self-destruction. How signally was this statement verified, when Governor Boki placed himself in opposition to the Christian chiefs and gospel progress among Hawaiians. For a season he continued his career of opposition, intemperance, and prodigality. At length, in order to retrieve his fortunes and those of his party, he embarks on the holy sabbath, with nearly five hundred of his associates and companions. They sail in two vessels for the South sea in search of Sandal wood islands. Months pass away and ere long the smaller of the two vessels returns, bringing only twenty of the one hundred and seventy-nine who sailed in her, while all on board the other vessel numbering three hundred, with their leader perished. Not one was

left to report the story of their loss. In other instances, God's special Providence has appeared to be most signally displayed. But I will not detain you with the recital of such events, I much prefer dwelling upon the bright side of the picture of Hawaiian evangelization.

How providentially God inspired the hearts of the rulers or chiefs of these islands, to take the mission under their fostering care and protection. The names of some of the female chieftains have acquired an historic fame. Kaahumanu, Kinau, Kapiolani, and many others exerted their kindly offices in behalf of the mission in the days of its infancy. It would require a pen possessing more graphic and descriptive power than mine, to portray in fitting language the moral heroism of Kapiolani, when she knelt on the brink of the seething and boiling crater of Kilaueau, and prayed to Jehovah, acknowledging Him as the true God, when her trembling and awe-struck people besought her to retire, fearful lest Pele's wrath would break forth and engulf the whole party. I am not aware that any instance in the wide range of historic research can be cited which displays more calm trust, earnest faith and sublime devotion under similar circumstances. Remarks Read, the author of "The Hand of God in History."—"I hazard nothing in saying, if posterity shall do justice to the memory of Kaahumanu, she will rank high as a ruler, a statesman, and a Christian. She lived and reigned in troublous times. The nation was just emerging from barbarism. A complete revolution was to be effected from the throne to the meanest subject. It is believed the annals of history present few persons, under the circumstances in which she lived and reigned, who have acquitted themselves better towards man and God—more essentially aiding the progress of Divine truth and of civil liberty."

During the somewhat lengthy remarks which I have now offered, I have spoken of the human agents and agencies which were employed for the introduction and establishment of Christianity on the islands. I have not lost sight of or forgotten that something over and above human agencies were needed. "I have planted," writes the Apostle Paul to the Corinthians, "Apollos watered; but God gave the increase. So then neither is he that planteth anything, neither he that watereth, but God gave the increase." The early missionaries planted, and their successors watered, but it has been God who gave the increase. In closing this discourse, I desire fully, emphatically, and distinctly to recognise the special overruling Providence of God in all which relates to this Christian mission and Christian nation. Holy men and women have laboured, Christians here and elsewhere have prayed for their success, and the friends of missions in the United States have generously contributed more than one million of dollars for the support of this mission; but all would have been vain and useless had not God poured out His Holy Spirit, and crowned those labours and efforts with His blessing. While God's presence has seemed to accompany them, as it did the Israelites, by a pillar of cloud by day and fire by night, yet there was one period when God's Spirit

came down among this people as on the day of Pentecost. I refer to the era of the great awakening from 1836 to 1840.

The missionaries came hither for a definite and specific design, which was to preach the gospel and evangelize this people. This was their great and leading object. Other ends and results might follow, but they were to be secondary. Their ultimate success however depended upon the influence of a Divine Power. Thus the missionaries felt. Their frequent days of prayer indicated that their reliance was upon God. A few of the natives from time to time became interested in the subject of personal religion, but it is not until the season of the great awakening that the mass of the people was brought under Christian influences. The missionary's success came not until after a "night of toil." Sixteen long years and more rolled away before God's Spirit was generally poured out upon the church. Eliot preached among the Indians of New England from 1646 to 1660, or fourteen years before he gathered a church, and the English missionaries in the South Seas toiled twenty years ere the people cast aside their idols. Thus, on Hawaiian shores, about sixteen years were required for the missionaries to lay the foundations, before they were permitted to see the spiritual arise. Remarks the Rev. Dr. Anderson, "The first public indications of the Spirit's approach were in the general meeting of the missionaries in 1836, and again in the meeting of the following year. * * * Among the natives the great awakening may be said to have commenced at Waimea, on Hawaii. In the spring of 1838 there was evidence of the presence of the Spirit at nearly all the stations on that island. So there was on Maui, Ohau, and Kauai. It was a work with power, and the power was evidently that of the Holy Spirit. The dull and stupid, the imbecile and ignorant, the vile, grovelling, and wretched, became attentive hearers of the word, and begun to think and feel. Even such as had before given no signs of conscience, became anxious inquirers after the way of life. Whenever or wherever the missionary appointed a meeting, he was sure of a listening audience. However great the crowds, the meetings were generally conducted with ease and pleasure. The Sabbath was extensively observed."

At Honolulu, Hilo, and many other places meetings were held continuously, embracing two, three, four, and five thousand. There was a thoroughly awakening of the whole mass of native society. There was a state of religious awakening and spiritual agitation which could be accounted for in no way, other than upon the supposition that the people were moved by a power from on high. It was nearly as manifest as the Spirit's power on the day of Pentecost. In 1837, the total number of church members was only 1259, but in six years, or 1843, the number had been increased to 23,804. After making all proper and necessary allowance for spurious conversions and defections, there finally remained the unmistakeable evidence, that God had wrought a great work among this people.

## Royal National Life-Boat Institution.

A meeting of this Institution was held on Thursday, 3rd November, at its house, John Street, Adelphi; Thomas Chapman, Esq., F.R.S., V.P., in the chair. There were also present Sir Edward Perrott, Bart., W. H. Harton, Esq, Sir Frederick Arrow, Deputy-Master of the Trinity House, Captain De St. Croix, John Griffith, Esq., Colonel Palmer, Eugene F. Noel, Esq., Richard Lewis, Esq., and Captain Ward, R.N.

The minutes of the previous meeting having been read, rewards amounting to £480 were voted to the crews of various life-boats of the Institution for services during the storms of the past month.

The *Two Sisters* life-boat at Ramsay, Isle of Man, saved the crew, consisting of ten men, from the stranded schooner *Gipsy*, of Glasgow. The Kingsdowne boat, after remaining some time alongside the Norwegian ship *Hony Sverne*, which had gone on the Goodwin Sands in a very heavy sea, rescued the master and mate from an inevitable death, they being the only persons then left on board the vessel. The Lowestoft life-boat *Lætitia* and the Corton boat *Husband*, saved fifteen men from the wrecked smack *Olive*, of Harwich; and the Lowestoft boat also brought ashore on a subsequent occasion the crew of eight men from the stranded brig *Glenora*, of Scarborough. The St. Andrew's life-boat *Annie*, with much difficulty, took off the six persons on board the schooner *Let*, of Fredericksund, when she went ashore off St. Andrew's. The *Augusta* life-boat at St. David's saved two men from the smack *Transit*, of Cardigan. The Newbiggin life-boat, the *William Hopkinson*, of Brighouse, rescued from destruction thirteen fishing cobles and their crews those boats having been overtaken by the heavy gale. The *Filey and Arbroath* life-boat also performed somewhat similar services to distressed fishing boats. The *Christopher Brown* lifeboat, at Penmon, Anglesey, assisted into harhour the disabled schooner *Seven Sisters*, of Lancaster, and her crew. The Ayr boat *Glasgow Workman* rescued fifteen men from the barque *Orange Grove*, of Glasgow. The Rhyl life-boat the *Morgan* piloted the distressed flat *Flora*, of Runcorn, to a port of safety. The Port Isaac life-boat *Richard and Sarah* saved three of the crew of the brig *Stephano Grosso*, of Genoa. The Porthdinllaen, *Cotton Sheppard* life-boat helped to save the smack *Hopewell*, of Barmouth, and the ship *Alhambra*, of Liverpool, when they were in distress off that life-boat station. The Llanddwyn life-boat *John Gray Bell* rescued the crew of five men from the wrecked brigantine *Meteor Flag*, of Londonderry, and through the boat's assistance the schooner *Pacific*, of Belfast, and her crew, were also saved. The Clovelly life-boat *Alexander and Matilda Boetefeur*, was the means of saving three fishermen and the boat belonging to two of those men. The Wexford life-boat *St. Patrick* rendered material aid to the distressed barque *Saltee*, of Wexford, which was afterwards towed safely into harbour;

and the Fraserburgh life-boat *Havelock* saved the schooner *Charles Whiteway*, of Runcorn, and her crew of five men, that vessel being on the point of going on the Cairnbulg Rocks.

It may be mentioned that during the heavy gales of the 13th and 14th October, no less than twenty-six life-boats of the Institution went afloat to the aid of crews of distressed vessels, and that altogether the Society contributed in the first ten months of the present year to the saving of 652 lives from shipwreck on the coasts of the British Isles, besides aiding to save twenty-two vessels from destruction in that period.

Various other rewards were also granted to crews of shore boats who had saved life from wrecks on our coasts. Payments amounting to £2.500 were likewise ordered to be made on various life-boat establishments, and £1,000 stock of the funded capital of the Society was to be sold out to meet the recent heavy expenses it had occurred.

A fine new life-boat, named the *George Hounsfield*, had just been stationed at Aldborough, on the coast of Suffolk, and new life-boats were also ordered to be placed at Pakefield, Suffolk; Buddon Ness, near Dundee; Buckie, N.B.; and Greencastle, county Derry.

The people of Bolton, Lancashire, had, through T. H. Winder, Esq., and other gentlemen in that town, presented to the Institution the life-boat which was shortly to be publicly inaugurated at Kessingland, Suffolk.

A legacy of £399 17s. 3d. had been received from the executors of the late Dudley Costello, Esq., for another life-boat for the Sussex coast. Lady Vivian had also forwarded a first instalment of £145, which she had collected towards the cost of a life-boat. The officers and crew of the ship *May Queen*, of Alloa, had likewise contributed £2 8s. 6d. to the funds of the Institution.

The meeting learned with much satisfaction that the Scotch fishermen were extensively adopting the plan of the safety fishing-boat of the Society in the construction of their own boats.

A report was read from the inspector of life-boats to the Institution on his recent visits to various life-boat stations, and the proceedings then terminated.

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## LETTER FROM THE SEAT OF WAR—PARIS.

The following is an extract of a letter from the Seat of War—Paris:

"St. Germain en Laye, October 29th, 1870.

* * "After many a wish and effort to write to you, I take my chance of this letter reaching you ere this great and dreadful drama closes, perhaps in a fortnight by Berlin; since September 16th, we have not had one word from England, and on that day a man in disguise we believe came one night with three letters, and when he gave them to

E—, he said, 'vous savez madame, que vous êtes capable de me faire fusillier,' two or three persons here have received letters through the foreign office by way of Berlin, they come in the Feld Poste Bag with despatches to Col. W., at Versailles, day after day goes by, and we are weary and longing for letters. No one ever had the slightest idea of this horrible war dragging on in this frightful way. After the capitulation of Sedan we thought the march upon Paris would be quick and decisive, and peace made, we could have borne three weeks, I am almost alarmed to think how much longer we have now to suffer; it is believed by competent judges that the king is not willing to bombard Paris, but to reduce the beautiful city to capitulate and make terms (by what means except famine?); already horseflesh is the only meat, butter at eight francs per pound. We grow impatient, and wish that Trochu would come out and give battle, a deadly massacre it would be! but the alternative worse, to destroy that beautiful city by *bombs of petrole*. The pavement is taken up in many places to prevent the rebounding of shells, the windows of the Louvre are protected by bags of sand. One alarm has succeeded another even here, all at once every one of these wealthy lovely houses in this our locality was emptied of its inhabitants. All day long and all night people were removing, the road had a continuous stream of carriages filled with goods. A fortnight after the declaration of war E—. and I. went to Paris to see some friends off to Boulogne, we had just entered this house five minutes, when the bridge across the Seine was blown up by the French. Two days later we were struck with horror by seeing one hundred and fifty labourers sent to the forest gate close to this house with axes, etc., to make a deep trench, by order of the General, and *rumour* ran wild that this undefended town meant '*to resist*' the approach of the Prussians, the gates were to be mined, and of course we stood in the greatest danger. Thousands of the forest trees were felled and thrown across the carriage road from hence to Poissy, three miles. E—— said to me, do go to-morrow; we passed a terrible day, I packed up. Our chaplain had been told that the outcry was, that the Protestants had got up this war, the Prussians being generally Protestants. He advised me to go into the town. E—— set out at six in the morning in a covered country cart (I was afraid of the confusion at the railway), she took four large cases with etc., etc., to go to Boulogne, when she got to Poissy railway it was closed, then she went on to Mantes, thirty miles further, that railway was also closed, and she had to return. The next morning at seven I was startled by seeing a regiment of Prussians with the well-known spiked helmets and long blue cloaks ride by to the forest gate, through which they passed without a shot or word, I walked down and there sat an officer and an aide-de-camp, looking on the crowd as leisurely as possible, as if he would say, 'See your masters, we are in possession of the forest;' the others of the regiment had gone to the gate of Poissy. Thus was this beautiful town taken by the Prussians, who laughed heartily at the would-be *trenches* and felled trees, in less than two hours enough of the trenches were covered over to make a path for cavalry, of whom

three hundred and fifty pass our door daily on promenade, fifty-one bridges have been burnt by the French, all to no purpose. Sixty pontoons went by here in the first two days, and I saw them from the terrace launched in one hour and ten minutes, so the poor bridges might have been spared. Many houses here have four soldiers, who invariably behave *well*, we have as yet been spared this grievous infliction, being a little way from the town, but alas! three thousand are this very day come from Metz, and we are threatened to have four in this house, we can accommodate them on the ground floor, and so be spared from the nuisance of having them in the rooms above. It is a great advantage being able to speak to soldiers or officers when they come to ask how many beds we have, the fellows are delighted when we can speak German to them. We are in great want of *salt*, Dr. W—— walked three miles to get some, none to be had. At Versailles not a grain to be had; Dr. W—— is making some, *how* I do not know. E—— says she must die if she has not salt, I found favour with a good soul on Monday, who gave me half her own; as to sugar we are content to get the *sweepings* of drawers, *flies' wings* included; of meat, bread, and butter, at three francs a pound, we as yet have plenty. You in England do not seem to realize our position, how I wish you could see from this terrace where poor Paris lies, to look at Mont Valerien, which will never be taken we are sure, then the lovely little towns right across the Seine, from which every soul has been driven away and their pretty villages pillaged. A history in itself, which Europe has never seen; we have a faint hope that Thiers may convince the Parisians of the utter hopelessness of holding out."

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## Papers read at the Social Science Congress, held at Newcastle, in September, 1870.

### *Pauper Boys and Training Ships preferable to Criminals and Reformatories.*

[The Social Science Congress held at Newcastle in September last, of which we gave some results in our last number, has produced a paper from which the following is an abstract, by J. W. Wood, Esq., Collector of Customs at Harwich. The subject was treated on in our volume for 1867. The evil seems to have gone on increasing.]

What to do with the rising generation of paupers is—taken into consideration in connection with our rapidly increasing population—a question of serious moment, both to the Government and the community. Are the majority of our helpless pauper children destined to swell the ranks of thieves and vagabonds, to assist in perpetuating and increasing pauperism, or, by being taken in hand in time, to

become useful members of society, and a source of national strength and prosperity?

I find on referring to some mercantile marine statistics, furnished me by eminent shipowners, the following startling increase in the employment of foreign seamen—viz., from 13,200 in 1854 to 31,817 in 1867; in fact, they had increased in proportion to the registered tonnage, whilst the number of British seamen had not, owing to a great extent to the abolition of the old system of compulsory apprenticeships, which gave us the best of our able seamen. Here, then, is a want to be supplied.

I find also, on referring to a return issued by the Poor Law Board, that there were, on the 1st of January, 1869, in the English and Welsh Unions *alone*, 21,881 pauper children of from twelve to sixteen years of age, of which number, I am informed, that about two-thirds, or 14,587, would be boys. Here is a surplus to be provided for, and it is, I think, reasonable to assume that a large proportion of such boys would elect to go to sea, if shipowners could be found to take them. Bearing in mind that the number I have mentioned represents but a *portion* of the United Kingdom, and for *one day* only, what a constant and never failing, but as yet almost untouched source of supply from which to recruit the ranks of our merchant seamen presents itself! Then why do not shipowners avail themselves of it? The only reason I have as yet been able to obtain from owners is, that after the boys have been twelve or eighteen months at sea, and learned to be a little useful, too many of them take the first opportunity to desert. But may not such desertion be justly and charitably attributed to another cause? We all know the weakness of human nature, even amongst the educated, and it is easy to conceive that an ignorant pauper boy fresh from the union, and knowing nothing of a seafaring life, would for some time be a butt, a byeword, and a drudge amongst his rough associates, so as to cause him to desert and leave his unpleasant antecedents behind, as soon as he became at all capable of taking a position as an ordinary seaman.

In endeavouring to devise a remedy, three interests have to be considered, viz., that of the boards of guardians, the shipowners, and the boys, and it seems to me that the nearer and closer we can unite these interests for their common good, the nearer we approach a practical solution of the difficulty.

Briefly reviewing the main features of the case:—The maintenance of a pauper boy from twelve to sixteen years of age costs, I am told, about £10 per annum. Boards of guardians, acting in the interest of the public, will, therefore, be glad to get them off their hands as soon as possible after they have turned twelve years of age; but owners will not take them.

Shipowners want boys, but, under existing circumstances, pauper boys are found to be practically worse than useless.

Pauper boys in large numbers, it is assumed, would gladly go to sea if Guardians would allow and owners would take them.

To meet these difficulties I repeat a proposal made by me at the

Society of Arts in February last, viz., the establishment at our leading seaports of *training ships for parish apprentices*, and hope to be able to show that, once established, they would be self-supporting.

We will suppose, by way of illustration, that government gives a ship, and that a staff of instructors has been appointed; a board of guardians sends a suitable boy of twelve years of age, and, with his own consent and the consent of his parents (if any), apprentices him to the ship, paying at the same time the usual union premium of (say) £10, and the cost, in advance, of one year's union maintenance, say another £10, or £20 in all. This amount being much more than would suffice for one year's maintenance on board, the surplus would go towards the cost of his training; at the same time the guardians, supposing they would otherwise have kept the boy till he had attained sixteen years of age, would be a clear gainer to the extent of the cost of three years' maintenance, or £30.

A shipowner wanting a boy goes to the training ship, and obtains one who has had not less than one year's training. That boy is of immediate practical use to him. He has received more instruction, and that of a superior class, and he knows more, than any other boy who has been twelve months in his service, because he has not only had greater facilities for learning, but *nothing else but learning* to attend to. The owner can, therefore, with advantage, afford to pay a small premium for him, equivalent at the least to what he would have paid the boy for a previous twelve months' apprenticeship to him, for has not the boy been carefully trained for him during that period, and that without his having borne the cost of maintenance? Add the amount of premium given by the owner (say £10) to that paid by the guardians (£20), and the result is an income of £30 per head per annum, which amount, it is assumed, would be amply sufficient to defray the cost both of maintenance and training, and render the establishment self-supporting, the cost per head per annum on board the *Chichester* Training Ship for Homeless Boys, being but £27 10s. The advantages to the boy would also be great. He would be raised in the social scale. He would feel that he was wanted rather than shunned, and instead of going to sea as a drudge, he would be enabled rather to take the lead of his juvenile messmates; while his elementary education would tend to a more rapid acquisition of knowledge, and consequent advancement in life.

The scheme I have suggested consists, in short, in requiring the first year of a parish boy's apprenticeship to the sea to be served in a training ship, and his subsequent transference to an owner or master for the remainder of his term, with the mutual consent and to the mutual advantage of the parties concerned.

To those interested in the religious as well as moral welfare of our merchant seamen, I would also point out the great value such training ships might prove, if used on Sundays as floating churches for seamen at our various ports.

A few suggestive thoughts in connection with my subject now present themselves—

1st.—As to the demand for trained seamen to supply our mercantile marine.

I have already shown the startling increase in the employment of foreigners, necessitated, in a great measure, by the scarcity of trained British seamen, and would remark in passing, that such may not only tend to numerous disasters, and consequent loss of life and property at sea, but it may be worthy of consideration, whether the presence of so large a proportion of the foreign element, by causing confusion, or its absence, further scarcity, might not be productive of serious inconvenience or even grave consequences in case of maritime war. It is, however, assumed by many that steam has of late been so rapidly superseding sails that fewer seamen will be required. How far this is the case may be judged from the following extract from the *Shipping Gazette* of the 25th July last:—"The Bureau Veritas thus sums up the number and tonnage of merchant vessels of *all nations*, sailing as well as steam, viz.:—

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|---|---|
| 59,518 sailing vessels | 16,012,498 tons. |
| 4,312 steamers | 2,793,432 tons. |

It is true that to some extent steam is superseding sails in coasting and comparatively short foreign voyages, but it can never be so in regard to vessels engaged in long voyages, until such a cheap, portable, safe, and effective substitute for coal be found, as may enable vessels to dispense with sails; which is not likely to happen in our day, if at all, in consequence of the necessity for having sails to fall back upon in case of damage to machinery at sea—which sails require seamen to manage them. But supposing for a moment that by *any* means, such improvements in steam and sailing vessels could be effected as would cause a less number of seamen to be required in proportion to tonnage, it would only add to the necessity for such being *thoroughly trained men*. With all deference to the opinions of those who may be more competent to judge, I cannot but think that pauper boys, properly trained on board training ships *specially* provided for the purpose, would make better seamen, in a shorter time, and at less expense, than those obtainable under the present system or absence of system.

2nd. There is one speciality in regard to pauper boys as distinguished from reformatory or other tainted classes in connection with our mercantile marine, which may be worthy of consideration. The life of a seaman is to a certain extent one of toil and hardship. It is, therefore, of importance not only to himself, but to his employers, that he possess a sound constitution, as having an important bearing upon both his physical and mental capacity; and I think it may be fairly assumed that pauper boys, especially from the agricultural districts, being less likely to have inherited disease than boys from the streets, either in our manufacturing towns or seaports, would make sounder and more robust men, while from their antecedents, it being certain that they could not have had similar opportunities of contracting vicious habits, it is but reasonable to suppose they would, with proper training, make the best of able seamen, provided they were kept apart from the tainted classes in other training ships.

3rd. A few words on the subject in regard to the Navy. Our mercantile marine is, and probably always will be, the Nursery of our Navy; consequently its condition is a matter of national importance. Naval vessels, as a rule, use steam only as an auxiliary; therefore there is not likely to be a falling off in the demand for seamen in war vessels for navigating purposes. They may also be required upon occasion as fighting men. Naval vessels enter boys as well as A.B's. The present naval system of training boys is very expensive, while the pauper training ship system would be cheap as well as effective in regard to elementary seamanship. The admission of pauper boys to the Navy, after a limited training on board pauper training ships upon agreed terms would, therefore, it is assumed, be attended with economy to the government and advantage to all interests.

I now submit what I have advanced to consideration and discussion, in the hope that good may result, merely pointing out in conclusion that the only legislation on the subject necessary, would be a slight addition to the provisions in regard to parish apprentices contained in clauses 112 and 113 of the Merchant Shipping Code Bill, which is to be brought before the House next Session.

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## Collisions at Sea.

The Rev. Dr. Hooppell read his paper on "A Fruitful Cause of Collisions at Sea, with suggestions for its removal." The following is an abstract of the paper:—It was unnecessary to dilate upon the frequency and lamentable results of collisions at sea. In a district abounding with important seaports, like that in the central town of which they were assembled, the names of unfortunate vessels that have suddenly gone down with the whole, or nearly the whole, of their freight, sometimes beneath boiling surge, sometimes under a glassy surface, were familiar on the lips and in the memories of all. Not a season passes without some terrible catastrophe of the kind, attended with the sacrifice of many lives. Scarcely a week without serious damage to property arising from this cause. Nor was it necessary to dwell at any length upon the special difficulties attendant upon the seaman's task of traversing the sea. The rule of the road on land was not to be compared for a moment, in intricacy or difficulty, with the rule of the road at sea. On land, foot passengers were perfect masters of their own movements; competent riders or drivers had their horses, when properly trained, under complete control; the rules were few and simple. At sea, the wind, the water, the inertia of the massive ship, had all to be considered. The wind and water could not be influenced in any way by the helmsman, and the ship would only obey his bidding in its own way, in its own time, and within certain limits. And then, moreover, the rules were numerous and complex. On land, a single rule sufficed for foot-passengers, a single rule for vehicles. At

sea, no fewer than ten were needed. The rules on land were impossible to be misunderstood. Not so the rules at sea. In some of them different individuals might, without prejudice to their judgment, come to precisely opposite conclusions. It was this last fact the writer wished particularly to bring before the notice of the Social Science Association upon this occasion. It was the "fruitful cause of collisions at sea," to which he wished to draw attention. The present code of regulations was the result of many successive improvements. It probably was not susceptible of any great emendation, except in the particular to be noted now. It would be granted that every rule upon which the safety of human life and of valuable property depended should have three great characteristics. Every such rule should be simple, precise, invariable. Such was the character of most of the rules enrolled in the code; but there were two exceptions. There were two most important rules, rules of constant application, in which words were introduced which rendered them the reverse of what they should be in those respects, words which made them intricate, doubtful, variable. The rules were those applying to ships meeting each other upon opposite courses, and the words were only four in number, viz., "or nearly end on." Mr. Hooppell then showed the mischievous effects of these few short words by pointing out some of the common positions in which ships find themselves. The mischief caused by the words "or nearly end on," was that they confounded all these cases together. Unquestionably this was not the intention of their authors, but it was the practical result. If vessels were not actually end on, they must be either crossing or passing. In either case the rule for meeting vessels was not the rule to be followed. The gravest consequences followed from the words being indefinite. No two men agreed as to what constitutes "nearly."

Many most calamitous collisions had occurred through the different interpretations placed upon the phrase by the commanders of approaching vessels. Commanders of approaching vessels could not communicate with one another as to the rule that was applicable to their case. They had to decide immediately, often under trying circumstances. One thought the vessel in sight to be one meeting his own nearly end on, the other thought the approaching ship a passing or a crossing one, as the case might be. One acted on the one supposition, the other on the other, and collision, with sometimes terrible loss, was the consequence. There were two positions in which this different estimation of the relative positions of the ships by the different commanders was especially fruitful in disaster. One was when the two vessels were really passing vessels, about to pass each on the starboard side of the other; the other was when they were really crossing vessels, one being in the act of crossing to the starboard side of the other. Calamitous results, flowing from misinterpretation of these ambiguous words were of constant occurrence. Many efforts had been made to obviate them. But the simple remedy of leaving them out had not been tried.

To leave them out altogether was the true remedy. They were

altogether unnecessary. They meant, in the intention of their authors, no more than "meeting end on." That was to say, the seaman understands by the words, "two ships meeting end on," all that the authors of those words intended him to understand by "meeting end on, or nearly end on." And this was the cause of all the mischief. For the sailor, understanding by the words "end on," all that he was intended to understand by the words "end on, or nearly end on," cast about in his mind for the meaning of the latter part of the phrase, and, doing so, found it sometimes in one misinterpretation and sometimes in another. Sometimes he thought it applied to a ship about to pass him on one side or the other, and sometimes to a ship about to cross his track from one side to the other. A unanimous demand was springing up amongst the seafaring community of this country that the words should be removed from the rules. Seamen earnestly asked that their lives should no longer be jeopardised by a reluctance to take from regulations, which were otherwise wisely conceived and intelligibly expressed, a few words which were proved to be unnecessary, and fraught with disaster.

The CHAIRMAN said they would be glad to hear the remarks of any gentleman on the several papers which had been read, the whole of which had a close relation to each other. With regard to Dr. Hooppell's paper, he might say that as that gentleman was a resident in South Shields, and as there was a Local Marine Board there, he should recommend them to bring his suggestions before them, and they would be forwarded to the Board of Trade. After the clear way in which Dr. Hooppell had made his suggestions, he thought there would not be much difficulty in getting them adopted by the Board of Trade. As soon as they were adopted by the Board of Trade, they would be communicated at once to the whole of the Marine Boards of the country, and all the masters and mates who were to be examined would be made acquainted with them. Captain Dawson's paper was a very clever one, and it would be next to impossible to discuss it in detail. That gentleman came from London, where he had great opportunities of investigating his subject. In the north many of them took a different view of cases the captain had alluded to. No doubt many of the vessels were not very well fitted, and perhaps were rather fully insured. Owners had a difficulty in believe that their ships were worth so little as they were said to be. There was a considerable depression now in sailing vessels, but it was believed they would increase in value, because, while there was a demand for steamers, there were no wooden ships being built, and relatively they were expected to increase in value. With reference to the way in which these vessels were "found," and with respect to the premiums, Captain Dawson had said it was a great misfortune that an owner of a bad vessel paid no more than the owner of a good vessel with a good crew. In the North of England, here they had a mutual insurance association, and vessels had to be not only classed, but examined by the surveyors. If those vessels were wrong in the hull, the spars, ribs, or required chain cables, these things were attended to,

or the vessel was not insured. This was one reason why premiums in the North had been less than what was required to insure a vessel in London. In Bristol and other places the mutual marine system had been acted upon. As to seamen being employed for the second and third voyage, there were difficulties in the way. When ships came home the crews were paid off. Perhaps a vessel came into London and discharged her cargo; before loading again and going away she might be there about two months. In the meanwhile the crew had got their wages, and were gone somewhere else.

CAPTAIN DAWSON: But could not the same owner find them another ship?

The CHAIRMAN said, an owner would of course give his men the preference if he had another ship ready to sail. The immediate payment of wages was another difficulty. It was the custom for crews to get monthly advance notes, and allotment money paid to them during a voyage. After a vessel arrived, the owners had to calculate what had been sent to their crews, and the wives of their crews. Then, as soon as vessels arrived—and indeed before they were in the harbour at Shields—crimps got on board and plied their vocation. Arrangements had been made for the convenience of seamen who were wishful to take care of their money, and savings' banks were attached to seamen's homes. There were difficulties about the allotment and monthly money. Allotments were generally made by respectable seamen. Undoubtedly advance notes were a great curse to seamen. A sailor, after a voyage, went away and spent his money, and thought nothing more about it until it was exhausted and he wanted another ship. In too many cases, on going to a fresh ship, the men were in a state of intoxication, and a man in that condition was of no use for the first twenty-four hours. Twice last year there was an attempt to introduce a Mercantile Marine Bill, which would deal with several matters bearing on the subject under discussion. He was happy to say that at North Shields they had a well-conducted sailors' home, built a few years ago by the late Duke of Northumberland. Large numbers of seamen returned dozens of times to that home, and by that showed their appreciation of it. As to the manning of vessels, a great number of ships which came to the Tyne, the Mersey, and the Thames were manned by foreign seamen. When the Navigation Laws were passed, it was put strongly that if they had to compete with foreign shipowners they must be allowed to employ foreign seamen. Formerly, the British shipowner used to take apprentices; but now they would not take them unless they knew them well, because it was a common thing for apprentices, after being at sea two or three voyages, to desert their ships and engage themselves for more wages to others. He was happy to say, they had got a training vessel in the Tyne which, with kindred institutions, would tend to raise up a class of boys for the sea which would prove a boon to shipowners. Something, he thought, might be done in the way of offering bounties and outfits which would induce owners to take those boys, who, he felt sure, from their training, would remain in their vessels.

C C C

The SECRETARY said he had to express Mr. Palmer's regret for not being able to stay to hear the whole of the papers which had been read.

The Rev. Wm. A. SCOTT considered Captain Dawson's paper a most valuable one. His first impression on hearing the paper was the truth of the old adage, how little one-half the world knew how the other half lived, and the marvellous amount of ignorance as to the condition of those to whose industry we were most indebted for the prosperity of our country. In another section, that morning, he had been explaining the condition of the miners, and he was surprised to find the amount of incredulity he had met with. The chairman's remarks had vindicated the owners of vessels sailing from the Tyne, and he had no doubt some of his explanations would be applicable to ships sailing from Sunderland and other ports, and the little harbour of Seaham, with which he happened to be more closely connected. But he supposed the chairman would admit there was great room for improvement. He then pointed out the importance of passenger ships being provided with competent surgeons, after which he urged the benevolent to assist the Merchant Seamen's Orphan Society. There were many casualties and a great deal of mortality at sea, which might be prevented if proper care were exercised. He knew how much depended upon the way in which the wages were received. Captain Dawson had told them that in the Royal Navy the same evils existed as now existed in the merchant service. No evils had been remedied without great difficulty. However serious, numerous, and great the difficulties might be, there was quite sufficient intelligence, ability, and energy on the part of the owners of ships and of the managers connected with the merchant vessels to overcome those evils if they took them seriously into hand.

Mr. MARSHALL said he was surprised to find the recklessness with which human life was viewed, and the little care which was taken of the lives of seamen. Captain Dawson had told them of the number of deaths during the year, and alluded to the fact of no inquiry being made into the circumstances of the loss of the vessels and the loss of the lives. Unquestionably if an owner of a ship sent her out to sea, although she might be sea-worthy, and although they on the Tyne took great care of the ship and its appointments, if the captain was a cheap one, and the crew so many ragamuffins as could be got together, should the ship go down the owner was morally responsible. And if he did this to get his insurance it was a fraud of the most monstrous kind. In all other classes of life there were inquests to inquire into the loss of life. In gaols there were inquests. A ship had been cynically described by Dr. Johnson as a prison with the risk of being drowned. Certainly, if the risk of being drowned was increased by want of due care to prevent that catastrophe, an ordinary ship was worse than a gaol. In the navy, if a ship were lost the captain was obliged to give an account of the matter. A ship might be lost without any blame to anybody; but it was proper that searching inquiry should be made.

Captain POCOCK was glad to take that opportunity of giving

expression to indignation which he had bottled up five or six years ago. When coming from New Zealand they were short-handed, and the captain of the vessel got hold of anybody he could before sailing. Amongst the number of seamen there was one man who could not do his work, and he was kicked and bullied about. On one occasion the mate took a hand-spike to him, and finally he was put in durance vile. One day there was a cry of a man overboard; the poor mortal had committed suicide. On arriving at London, he (the speaker) expected to be called upon to give evidence in the matter; but there was no inquiry that he ever heard of. He was certain that if ever there was a clear case of manslaughter that was one, for the poor fellow was driven overboard. He instanced another case, not of cruelty but of want of consideration. In coming up the Thames one day in a large vessel, he saw the men, while it was raining, scrubbing paint of the ship. He could not see the use of such work. They had sent ten boys from the Wellesley training ship to sea as apprentices. Two of those boys had absconded. Before they went away he had pointed out them the responsibility they were undertaking, and how they would disgrace themselves if they did not abide by their bond. He had been disappointed in them. On board the training ship they endeavoured to teach the boys that there was a God, and pointed out to them the necessity and importance of their leading a godly life. But when the boys went to sea they got into all manner of temptations. He was tkankful to say that most of the boys who had come back from sea had mixed up with the captains' sons or with the officers of the ships they had been in. He wished that the shipowners would desire their captains to hold the worship of Almighty God on Sundays and evenings. He agreed with Captain Dawson, that the sailor was a religious man. If shipowners would encourage their captains to have prayers on Sundays, and furnish them with a small library, that step would do more to evangelise the seamen than anything else.

Captain Dawson, before replying, said that, with reference to Dr. Hooppell's paper, it was not right that hard and fast lines should be laid down to bind people in managing their vessels. If they in that room were to dictate to seamen how they were to put their helm at night or in bad weather, he thought they would be trying a great deal too much. When it was necessary for the Secretary of the marine department of the Board of Trade,—his friend, Mr. Thomas Gray,—to deliver lectures in the east of London to explain ten rules, he thought the rules had no business in existence. On a dark night when a seaman noticed a ship near his, he had to estimate what the other ship was doing, and unless the two judgments of those two men exactly agreed as to which rule they were going to act upon, there was great liability of a collision. Two different men took two different views of two different rules. What was the old way before they got into those rascally steamers? The old way was that the starboard side ship held her own, and every other vessel got out of the way. The words, "nearly end on," had been the cause of very great mistakes, and had brought about a great number of collisions. What

was wanted was simplicity. In a sailor's mind there was no such thing as two ships being end on. With regard to his own paper, he was exceedingly grateful to the chairman for coming forward as a shipowner and making the remarks he had on the subject. He was the more grateful because that was the second congress he had attended on the subject. When speaking to Mr. Mark Whitwell that morning, he said, that in dealing with the question they were discussing, he found a difficulty with the masters. Now, if the officers and masters were an ignorant set of men, they would only tend to brutalise the men who were under them. They must make the officers better men. With reference to the remarks of the chairman, he had to say that difficulties were made to be overcome. It was the part of the shipowners and others connected with the shipping community to face those difficulties, and endeavour to overcome them. He, and people like him, saw the evil; but they might not be able to see the right way of overcoming it. There was a way of overcoming it, and if they did not hit upon the right way, they (the shipping community) ought to make it their business to find out what was the right way. Many suggestions he had made had been carried out. Shipowners at Liverpool had carried out every suggestion he had made. At Liverpool, no crimp was allowed to go on board a ship coming into port. Why should this not be the case on the Tyne? And for the last year no crimp was allowed to go on board ships coming into the Thames, disgraceful though everything there was connected with ships. It was true that crimps got on board when the ships got into the docks, but this was owing to the few police for that part of London. Wages ought to be paid promptly. When a ship did not arrive at a port at which she was expected, a difficulty might arise in paying the men rapidly; but when a ship arrived at a port at which she was expected, he did not see any difficulty in paying her off in two or three days. Respectable sailors had wives and children, and no class of employers did less for the wives and children of their employees than the shipowners. They heard of employers building schools for the children of their workmen, and he had heard employers spoken of as bad employers because they did nothing of the kind. But with regard to shipowners, that was the rule; and they ignored the fact that sailors had wives and children. With respect to allotments, he wished the Government to pay the overplus, and not the man who got the allotment. In denouncing the practices in shipping, he did not forget that there were many good ships managed in a most creditable manner. He wished to bring those thousands which were badly managed up to that standard.

The CHAIRMAN said that he had sat upon committees where, as underwriters, they wished investigations to take place where they thought there had been neglect, so that the master might be punished by having his certificate taken from him, or rewarded by being allowed to retain it.

The SECRETARY moved a vote of thanks to the chairman.

CAPTAIN DAWSON seconded the motion.

The CHAIRMAN returned thanks, and the section adjourned.

# Nautical Notices.

## Particulars of Lights Recently Established.

(Continued from page 609.)

| Name. | Place. | Position. | F. or R. | Ht. in Ft. | Dist. seen Mls | [Remarks, etc. Bearings Magnetic.] |
|---|---|---|---|---|---|---|
| 113. Magdalen Ids., N.E. | St. Lawrence Gulf | Gt. Bird Rock | F. | 140 | 21 | Est. 1870. |
| Chaleur Bay, N. side | Paspebiae Point | 48° 0·8′ N. 65° 14·3′ W. | F. | 55 | 13 | Est. 1870. |
| Caraquetta Is., S. side of Chal. Bay | I. Caraquetta W. end | 47° 49·7′ N. 64° 53· W. | F. | 52 | 14 | Est. 1870. |
| 114. Lake Huron | Lonely Island | 45° 33′ N. 81° 29′ W. | F. | 195 | 20 | See No. 114, for Miramichi R. *a, b, c.* |
| 115. Razzoli Is. | Bonifacio Strait | ... ... ... | ... | ... | ... | See Notice 115, also *a, b, c, d.* |
| Ancona | Adriatic | ... ... ... | ... | ... | ... | See Notice 115, for Ancona and Spanish Buoys. |
| 116. Ardrossan Head | Scotland | Change | ... | ... | ... | See Notice 116 for change in light. |
| Youghal | Iceland | Tide Light | ... | ... | ... | See 116*a* for Tide Light. |
| 117. Juan de Fuca Strait | North America | British Columbia | ... | ... | ... | See Notice 117 for Sunken Rock. |
| 118. Cape Campbell. Cook S. | New Zealand | Middle Island | ... | ... | ... | Est. 1st August 1870. See Notice 118. |
| 119. Boston Port | England, E. Coast | Buoyage | R. | 155 | 19 | |
| 120. Port Patrick | Abandoned | ... ... ... | ... | ... | ... | See Notice No. 120. |

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

No. 114.—Miramichi River.—*The Fixed Light on Portage Island* is 46 feet above high water, and in clear weather should be seen from a distance of 12 miles. In lat. 47° 9·8′ N., long. 65° 2·7′ W.

No. 114*a*.—*Fixed Lights on Oak Point.*—The easternmost elevated 40 feet, and the westernmost 60 feet above high water; in clear weather they should be seen from a distance of 10 miles. In lat. 47° 5′ N., long. 65° 15′ W.

No. 114*b*.—*Fixed Lights at Bartiboque.*—The two lighthouses are N.E. and S.W. from each other, on Bartiboque, Lower Newcastle.

The lights are *fixed*, one elevated 140 feet, the other 120 feet, above high water, and in clear weather should be seen from a distance of 10 miles. In lat. 47° 5′ N., long. 65° 23′ W.

No. 114*c*.—*Fixed Lights on Preston's Beach.*—They are two *fixed* white lights at the ship channel entrance, one elevated 66 feet, the other 55 feet, above high water, and in clear weather should be seen from a distance of 10 miles.

The towers are 30 and 28 feet high. In lat. 47° 4·8′ N., long. 64° 55′ W.

No. 115.—BONIFACIO STRAIT.—*Alteration in Razzoli Island Light.*—A *red* sector of 8 degrees of light is now shown from Razzoli light, bearing directly upon LAVEZZA ROCK.

No. 115*a*.—*Alteration in Position of Ancona North Mole Light.*—The green light on Northern Mole at Ancona has been moved 81 yards further out, or to the westward. Vessels should not approach this light within a half cable in the direction of the Mole.

No. 115*b*.—*Buoys at Cartagena.*—Two buoys have been placed near the portion of the breakwater under water, at La Cura, Cartagena, now in the course of construction, and two near the shoals in the harbour.

The buoy on the shallows near Escombrera Island has been removed, and no time is mentioned when it will be replaced.

No. 115*c*.—*The Buoy near Grosa Island.*—A *red bell* buoy has been placed on the shallows near the point of that island, northward of Cape Palos.

The buoy resembles a small boat.

No. 115*d*.—*The Buoy at Barcelona.*—A *white* buoy, *with black band, staff, and globe*, has been placed off the extremity of the eastern pier at that place. Vessels should not attempt to pass between the buoy and the pier.

No. 116.—*Alteration in Ardrossan Harbour Light.*—The fixed red light has been changed to a *white flashing* light, showing *bright two seconds* and *eclipsed one second.*

No. 116*a*.—*Tide Light, Youghal Harbour.*—The light is now exhibited, from *two* hours before high water to *one and a half* hours after high water. The light is a *red* light, visible through an arc of 18 degrees, or from N.E. by N. to N. by E. $\frac{1}{2}$ E.

By day, a ball will be shown for the same period of time.

No. 117.—*Sunken Rock off Trial Islands, Strait of Juan de Fuca.*—The *Brodie rock*, in the Mayor channel, has 3 fathoms on its shoalest part at low water springs, and is about a mile N.E. $\frac{1}{4}$ N. from the summit of Trial island.

Clearing marks are:—To the northward, North point of Small Trial island, in line with Foul point, W.S.W. To the southward, Foul point, seen between the Trial islands, W. $\frac{2}{3}$ S. To the eastward, East point of Great Chain island, in line with Cadboro point, N. by W.

[*All Bearings are Magnetic. Variation* 22° *Easterly in* 1870.]

No. 118.—*Revolving Light on Cape Campbell.*—The light *revolves once a minute.* The tower, painted with alternate bands of red and white, stands on the south side of the eastern entrance. It is situated on a knoll at the extremity of Cape Campbell, in lat. 41° 43·2′ S., long. 174° 18·5′ E.

No. 120.—*Port Patrick.*—The buoys marking the channel into Port Patrick having been displaced by late gales, will not be replaced, as the harbour has been relinquished. In consequence of the rapid demolition, by storms, of the works of the harbour, great alterations have taken place —and are still likely—in the depths as denoted in the charts. Mariners seeking the port are cautioned accordingly.

## A Dot Upon the Sea.

Boston, September 9th.

Ninety days ago a tiny boat, less than twenty feet in length, and carrying two men and a dog, left Liverpool, England, with the avowed purpose of crossing the Atlantic to New York. The bold and hazardous project was the subject of much amazement at the time, and about five o'clock yesterday afternoon the tiny craft was signalled approaching our harbour. At six o'clock the collector's tug started down the harbour, and met the venturesome mariners at about eight o'clock, opposite the lower light, and towed them to this city. The boat which has thus accomplished a voyage so hazardous and so altogether novel, is named the *City of Ragusa*, is twenty feet in length over all, six feet beam, and two feet eight inches in depth, drawing two feet of water; she is yawl-rigged, and spreads seventy yards of canvas; is fitted with a two-bladed steam propeller, worked by hand, and her hull is of wood, the boards being only one-half inch in thickness. In this miniature ship are all the arrangements for cooking, etc., and the capacity for carrying provisions and water sufficient for the voyage which has just been so successfully terminated.

The crew consists of two men, John Charles Berkeley, the commander, and Nicholas Primoraz. These are the two men who, actuated as the former says by a "mere whim," were induced to make this attempt, which few could regard as anything but foolhardiness, after seeing the craft in which they lauuched their destinies and hung their lives by a mere thread. The former has followed the sea from boyhood, and has passed an eventful life. He saved two lives off the coast of Kent on the 28th of September, 1858, for which he was awarded a medal by the British Humane Society. He is an Irishman, and has a home in Dublin. His companion is an Austrian. On Thursday, June 2nd, these daring spirits launched their frail bark, and, accompanied only by a dog, left Liverpool. In ten days they put into Queenstown, where they were obliged to remain four days in order to have some caulking done on their boat, which was leaking, and left there on the 16th, having on board one ton of ballast and 500 weight of coal. They took the northerly route, the same as taken by the *Cambria*, the prevailing winds being westerly, and for the first thirty-five days they suffered a great deal, being kept wet through continually.

They were also unable to cook in the first part of the voyage, and were compelled to eat their meat raw, which added to their discomfort, and helped to discourage them. After being eighteen days out they became short of firewood, with no means of getting a supply. At this time they very luckily picked up a barrel containing about four gallons of tar, which was a perfect godsend, they using the tar upon the decks and the barrel for fuel. On the 4th of July, they celebrated "the day of the great republic," drinking the health of President Grant in some prime Irish whiskey, with which they were supplied.

On the evening of that day there was a heavy gale, through which, however, they rode safely. On the 28th of August, they lost one of their crew, the dog, who died from scurvy. They had a great deal of heavy weather, but the little bark bore herself nobly, and the men themselves expressed surprise that she rode the heavy gales so staunchly. She was leaking all the way, and the pumps, of which they have two, were kept at work constantly.

In the severe gale of last Saturday they experienced the hardest time of the voyage, but suffered no disaster save the carrying away of the jigger boom. The largest number of miles made in one day was one hundred and fifty-three, which was made in the first part of the voyage, and smallest eleven miles. The average speed was four knots an hour. A number of vessels were spoken on the voyage, among which were the bark *Radcliffe*, on the 28th of June, bound to Quebec; the ship *Maxwell*, August 9th, and the homeward bound steamer, *Russia*, 24. From the first two of these they took in supplies of provisions and water. Two whales were very neighbourly off Cape Clear, coming near enough to be touched with the hand, and giving the voyagers some alarm lest they should upset their ship. One of "Mother Cary's Chickens" attended them from the time they left Queenstown till they passed George's Bank. The men say that they had the most perfect confidence in the success of their enterprise, and in the roughest gale could go to sleep with the greatest composure. Only the lateness of the season prevents them from returning home as they came. Their original intention was to go direct to New York, but they concluded to put into this port, and will go from here to the former place, and will remain this side of the Atlantic till another summer. They were towed to Long Wharf by the tug, and there can be seen this smallest of all crafts that ever traversed the broad Atlantic.

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## NATIVES OF ERRONAN ISLAND.—NEW HEBRIDES.—*An Extract.*

THEY were of copper colour, their limbs were small and well made, their features expressed vivacity and instinct, but there was nothing thoughtful or noble about them. They were not tattooed, but they had streaks of red ochre, or something of that sort, painted down the middle of their noses, which gave them an uncouth appearance. Through their ears, probably in infancy, large holes had been bored, in which had been inserted wooden pegs. These pegs had been gradually pushed through from the thin to the thick end, so that the lobes of the ears had now become nearly detached, and hung down almost to their shoulders in graceful festoons, as they thought, like weeping trees bearing tortoiseshell fruit, in the way of heavy ear-rings, constructed with barbaric taste and ingenuity. One of them had some old cotton reels instead of these tortoiseshell ear-rings, and he

greatly prized them. But it was evidently to the hair that they had paid most attention. It was all twisted up from the roots with a native gum, sticking it into a number of long thick strings gathered up and tied together at the back of the head with a bit of twine, so as to leave the ends of these strings reconverted back into hair—unnatural—standing out beyond the knot for about two inches, all curly and matted, like some gooseberry bush. A fork of thin stick had been planted in this bushy mass, and to each end of the fork were attached the gorgeous tail feathers of some noble old cock. A little strip of red cloth was worked into it, giving, so to speak, an additional head-piece. Around the left arm five or six large white cowrie shells were strung, bracelet fashion, and round the neck, by way of a necklace, they had strung together small pieces of mother-of-pearl, cut into circles, and into the shape of small fish. They were, of course, unclothed, except that they had a bag, called a "moro," fastened in front, suspended to a piece of twine, tied round the middle. They had not paid much attention to personal cleanliness, notwithstanding their almost amphibious habits. Their hair did not, properly speaking, belong to themselves; nine-tenths of their right-in-law having been evidently claimed, through long possession, by a vast parasitical population. Indeed the forked stick, to which we have alluded, notwithstanding its gorgeous paraphernalia of cocks' plumes, was perhaps, on the whole, more useful than ornamental; at all events they were perpetually using it as an instrument for skilfully disturbing the peaceful possession held by these interesting animals.

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## IONIAN ISLANDS.—*Cephalonia, etc.*

AMONG the remarkable physical phenomena connected with Cephalonia are occasional sudden risings of the sea on its coast, apparently not connected with any near earthquake, and confined to the narrow waters in which they originate. One of these took place in the year 1827, when the sea rose ten feet without any warning, on a fine calm night, moving heavy masses of stone recently brought for the construction of the mole, and alarming people greatly. Others on various parts of the coast are recorded. They are not easily explained, and until more detailed particulars are known, it would be useless to speculate on the cause. Among the permanent curiosities of the gulf of Samos (in which the sudden rise of the water above alluded to took place) is the outburst of a spring of fresh water in the sea, at a point about half way across from Samos to Pilaro. This goes on constantly; but can only be observed in calm weather when the water is seen to rise a foot above the mean level. This is the more interesting, as the bay is crowded with fish, who do not seem disturbed by this intrusion. Darkened that one can scarcely see to write, while a general state of distress pervades every living thing. It is considered that if in this

condition of the air, a storm of rain does not speedily follow, there is immiuent danger of an earthquake; but that after electric storms, followed by rain, earthquakes are not to be expected.

There is no winter of any severity, and the cold that is felt is only occasional. The air, also, does not often feel damp, so that a chill is rare. The unhealthy seasons are summer and part of autumn, and during August and September there is a good deal of malaria in some places. The malaria, however, is said never to reach the fort of Santa Maura, where the soldiers always enjoy excelleut health.

Govino is another village of the plains, not very far from Curcumelli, and as it is one which has a history of some interest, it deserves brief notice.

In 1848 Govino numbered 162 inhabitants. In 1860 the number dwindled to 118. It is one of those unfortunate localities where nature has granted beauty but denied health. It looks inviting and pleasant, but residence in it involves an attack of malaria and fever. During the time when the Venetians occupied Corfu, they selected the natural harbour of Govino as one of their chief places of resort. Here they constructed an arsenal, store houses and other public buildings, and here, no doubt, they planted a town which they believed would be permanent. It is not unlikely that at that time the harbour was deeper than it now is, and the neighbourhood less unhealthy, but at any rate after a time the town was abandoned, and even the few straggling sickly families who now call themselves inhabitants, live at some distance from the harbour. It is a silent and rarely visited spot, for there is poison in the air around.

And yet to look at Govino from a little distance, one would be inclined to select it as the site of all others for a town; a fine harbour with an entrance both north and south, an island and promontory stationed as if to fend off all troublesome winds and keep the sea calm, and rich vegetation clothing the ground everywhere all look tempting. The stagnant waters on the swampy places around, and the rapid evaporation from the calm waters of the harbour which receive all kind of dying and dead matter, and are too little disturbed ever to get rid of them by any other method than allowing them to decompose, fully explains the state of the case. The want of tide in the Mediterranean, and the farther we go east the more is this great want felt. It was necessary perhaps, that some drawback should exist on these beautiful shores, that man should not find a paradise too complete, and that he should be taught caution, and made to tremble where he would otherwise have been inclined to lie down in the careless enjoyment of too much terrestrial happiness. Certain it is that the absence of regular and considerable movement of the sea, is the great cause of all the fever that is so rife on the shores of the Eastern Mediterranean.

It is not necessary to describe at length the other villages and places of interest within the area of comparatively low ground encircling the town of Corfu. All partake of the same general character, and consist of picturesque but small and irregular groups of houses

half-buried in groves of fine olive trees, and varied by low hills or projecting rocks of limestone. There are few or no regular valleys, no rivers, and no commanding points of view, but all is pleasing and cheerful. The people too are civil and well-disposed, but are chiefly spread over the country, there being few detached houses. The population of the village is rarely above six hundred, and there are nowhere any marks of growth as exemplified by new buildings.

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## Notice to Mariners.

*(From the N. S. W. Government Gazette, 17th June.)*

South Entrance, Moreton Bay.—In the notice issued from this office, dated February 28th, the depth on the bar, with the beacons opened to the southward about five times their own width, was thirteen feet at the low-water springs. It now does not exceed eleven feet over that portion of the bar.

After rounding Point Lookout, if a course be steered keeping the south end of Taylor's Range just shut in with Amity Point, until the westernmost rocky knoll on the beach westward of Point Lookout—bearing about S.E. $\frac{3}{4}$ S.—is on with a midway line between the two westernmost hummocks of a triple hill at the back—the large sand-hill on Moreton Island being at the same time just open to the southward of the break on the North Spit—a vessel may cross the bar with these marks on in fifteen feet at low water springs. When on the bar, the North Break should be steered for until it is within a cable's length, when a vessel may be kept away for the leading beacons and past the south Break, as previously.

G. P. Heath, Commander R.N., Portmaster.

Department of Ports and Harbours, Brisbane,

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The Mutineers of the Bounty, *and their Descendants in Pitcairn and Norfolk Islands. By Lady Belcher, London: Murray.*

There is a remarkable feature resulting from the Mutiny of the *Bounty* that will ever distinguish it from all others. We do not allude to the cruel treatment of the prisoners at the hands of officers, from whose position in the service of their country some approach to humanity might have been expected, but we point to the flourishing settlement of Norfolk island, and the compact band of virtuous settlers formed there by the descendants of the mutineers. Settlers who have been brought up in the paths of virtue by John Adams (alias Smith) one of the mutineers, who happily saw the errors that had been committed, and nurtured those children in the paths of virtue which they have not forsaken, assisted by that excellent man, the Rev. Mr. Nobbs. He also persevered in Adams's course of treatment of his young flock, the actual descendants of the mutineers, and has

happily assisted them with his advice and superintendence in their transfer from the confined space of Pitcairn island to the more extensive and ample range afforded by Norfolk island. It is the most remarkable and solitary instance that has ever resulted from the dark and terrible trial of mutiny, bringing about (after a generation) a colony (surpassing a hundred souls) living in the enjoyment of peace and happiness. Such, we say, is an instance on the large scale of the result of virtuous living after a period of murder and bloodshed, too dreadful to dwell on. Thus is afforded another remarkable instance of the mysterious ways of an omnipotent Providence, who from the depths of evil in its most appalling form, can produce sweetness and love, in fact, the exercise of every Christian virtue.

The *Bounty's* mutiny is an oft told tale, but we doubt if the actual cause of it has yet been made so apparent as it is in the work of Lady Belcher. The volume before us would appear to have become her inheritance, as the nearest relation of the late Captain Heywood, the leading misfortune of whose life was to have belonged to that unhappy ship the *Bounty*. And as the mutiny of this vessel is thus rendered for ever remarkable, it assumes a perpetual interest with the British public. Another edition is looked for. The people naturally ask what has become of the *Bounty's* settlers, and who so proper to answer that question as the present author. There is more, however, than the mutiny related in the work before us, although this appears as more introductory, than otherwise, to the subsequent proceedings of the settlers, and it may be justly considered as a supplementary volume to the former narrative of the mutiny.

It is now very nearly forty years since Sir John Barrow gave to the world, in Murray's Family Library, his interesting and valuable little volume of the mutiny and piratical seizure of the *Bounty*, a work remarkably well told and especially useful to the historian, inasmuch as he tells us in the preface what we find realized in the context, "that he has been induced to bring into one connected view what has hitherto appeared only in detached fragments (and some—not generally accessible) the historical narrative" of this event. With this work the reader, interested in the narrative, finds all he wants, and lays it down to take up in continuation the work before us, the supplement, which tells us of the fate and fortunes of those descendants left by their unhappy parents, the "mutineers."

It is not our purpose to go into the details of the mutiny, how it happened, that in a little vessel, which ought to have been the happiest of the happy. But alas, when tyranny takes the lead, how completely all this is marred! Lady Belcher has her own views, taking a different course from her predecessors, by printing verbatim the journal of Morrison, a petty officer, who was acquitted from the Court-Martial, but who has borne ample testimony by his simple straight forward narrative of what was really the cause of the mutiny. Some of his words have been already printed by Sir John Barrow, but as Lady Belcher has adopted the journal completely up to the time of the mutiny, the existing cause of it can no longer be a matter of specula-

tion, if indeed it has not been already inferred from Sir John Barrow's valuable book.

It could scarcely be credited (yet it is quite true) that the journal of the commander of the *Bounty*, that was used on the Court-martial, had passages *suppressed* from it. Here is one in particular cited by Sir John Barrow. In reference to the time of the mutiny, this journal says:—"As for the officers whose cabins were in the cockpit, there was no relief for them; *they endeavoured to come to my assistance, but were not allowed to put their heads above the hatchway.*"* The portion of this extract in italics did not appear in the journal; it was unknown to the Court-martial, and on this Sir John most appropriately remarks;—"To say therefore, that, in the suppression of this passage, Bligh acted with prejudice and unfairness, is to make use of mild terms; it has more the appearance of a deliberate act of malice, by which two innocent men might have been condemned to suffer an ignominious death, one of whom was actually brought into this predicament: and the other only escaped it by a premature death." The names of these officers were Stewart and Heywood, the latter the much injured relation of Lady Belcher. It could scarcely be supposed possible that there should be two narratives of the official journal of Lieutenant Bligh, and yet Sir John Barrow has shown that that produced on the Court-martial did not contain passages which were shown in another. And as this is really important, and would have affected the officers tried on that Court-martial, it may be worth while to produce it here. The subject is important as it leads to the motives for the mutiny. Thus, in page 69, we read as follows:—

"It will very naturally be asked what could be the reason for such a revolt? In answer to which (says Lieutenant Bligh most *innocently* in this journal) I can only conjecture, that the mutineers had flattered themselves with the hopes of a more happy life among the Otahetians than they could possibly enjoy in England; and this, joined to some female connections, most occasioned the whole transaction. The ship, indeed, while within our sight steered to the W N.W., but I considered this only as a feint; for when we were sent away,—"Huzza for Otaheiti! was frequently heard among the mutineers." Now here was a most artful manœuvre played off (being all conjecture) in order to distract the attention of the court—a kind of dust to divert that attention from facts before them. But Sir John Barrow thus quietly disposes of it. He says in page 91.

The temptations, therefore, which *it was supposed* Otaheiti held out to the deluded men of the *Bounty*, had no more share in the transaction than the supposed conspiracy; it does not appear indeed, that the cry of 'Huzza for Otaheiti! *was ever uttered;* if this island had been the object of either Christian or the crew, they would not have left it three hundred miles behind them, before they perpetrated the act of piracy; but after the deed had been committed, it would be natural enough that they should turn their minds to the lovely island and its fascinating

* We have used italics for the sake of perspicuity.

inhabitants, which they had just quitted, and that in the moment of excitement, some of them should have so called out; *but Bligh is the only person who has said they did so.*"

But this statement unfounded as it proves to be was not without its effect. And we may observe, that it was to Tuboucai, the island to which the *Bounty* was first taken by the mutineers, from whence, as they were unable to stay there, they did go to Otaheiti, but left it again as soon as arrangements were made for the *non-mutineers* to be left there. However, the character of the *Bounty's* commander is sufficiently set forth in pages 72 and 73 of Sir John Barrow's book, which we care not to introduce here. But we repeat that it was a misfortune for any officer to sail under such a commander. We have, however, other far more interesting details in Lady Belcher's book.

The work appears conveniently divided into chapters, the first of which relates the passage out in the words of Morrison's journal. sufficiently accounting for the mutiny, which originated with Christian himself *only!* But it is true that he found so much disaffection, that in the course of *relieving* the middle watch, the whole affair was organized, and in course of proceeding. However, we leave all this detail of the effects of the commander's mismanagement of his crew. He had lost the respect of his people, and he had to take the consequences.

Another chapter disposes of the *Bounty*, and settles the mutineers in Pitcairn's island, leaving John Smith (alias Adams) and another, the sole survivors. There was, however, a progeny of children which grew to maturity under this man's excellent instruction. It is this part of the work which will always render Lady Belcher's book, highly interesting. The discovery of the people, the numerous visits paid to them by our ships of war, and the peculiar interest for them openly avowed by all who had any dealings with them, form a narrative which it is difficult to leave. Even the Admiral, commanding in chief on the South American Station, interests himself much about them; by his representation Mr. Nobbs, who had associated himself with them in the office of religious instructor visits England, is well received and returns to his charge. But we believe it principally arose from the representations of Sir F. Moresby, by that the whole party were transferred to Norfolk island, one or two families of them desiring to return, from this climate not being so suitable to them as that of Pitcairn.

The detail of this general move and their location at Norfolk Island forms an interesting episode; the islanders find themselves in another clime, not so enervating as that which they had left; but on the whole the change was beneficial. They were no longer hemmed in as on their limited ground of Pitcairn,—they were to have a new intercourse with the world. At Pitcairn they saw but few, very few visitors; at Norfolk Island they will still see a limited number, for the character of the island is an exclusive one arising from there being no protected anchorage there, so that no ship can take up any anchorage that a good breeze of wind may not oblige her to leave instantly to avoid wreck.

There is no harm whatever in this: it is not likely to affect the settlement injuriously—in the fine weather intervals everything goes on as required, and the peculiar character of the settlement has a better chance of being preserved.

The settlers, or as they are more readily known by their name of "Pitcairners," have a better chance of gaining their livelihood here than on Pitcairn Island, as they can send the produce of their farms to Sydney where it finds a market, and have a chance of amassing some little property. Already have they been successful in the whale fishery having made something by the oil. The peculiar habits of the young men are well adapted to this pursuit, in fact their aquatic propensities so often practised in making the tour of their own island from their early boyhood, have been of no slight service to them in the dangerous pursuit of killing the whale. In fact their enduring habits in the sea, which may almost be considered their native element, are perfectly astonishing. The following account of a fact related by Lady Belcher shows an amount of endurance in the water, for a length of time too, which is almost marvellous.

"Norfolk Island.
"*December* 11*th*, 1868.

"We have had an adventurous whaling season. About 300 barrels (of oil) have been taken, or at least preserved; two boats destroyed entirely (one of these I mentioned in my last letter), and one crew of six persons were for three hours in the water without the aid or knowledge of the other boats. The boat in question, Frederick Young's, was some three miles from the shore, and having imprudently fastened to a cow whale, no other boat being in sight, she very quietly turned the boat bottom up without staving a plank, and then went off some distance. The crew set about righting the boat, but of course could not free her from water; however they got the oars lashed athwart, and though the gunwale was level with the sea, commenced paddling (each boat always carrying a set of paddles besides the oars), very comfortably towards the shore, as I said, about a league distant. The current was against them, and they did not make much progress, still they were gaining ground, when to their surprise they saw the wounded whale coming towards the boat. As soon as they were convinced the boat was the object which engaged her attention (she either supposing it to be her calf which lay dead some two miles distant, or actuated by a desire for vengeance), the crew leaped overboard, and the irritated monster placed its head on the boat and there remained motionless for a time. Then she retired to a short distance, and the head man swam back and got a lance ready, determined to use it if the whale came again within reach. She did return, and Young actually thrust the lance several times into her 'spout-hole.' Feeling the smart, the whale settled down some fathoms, then came up swiftly and smashed boat and oars into fragments.

"There was now no alternative but to strike out for the land. One of the crew, an English sailor, could not swim, but two of our people

bid him put an arm on each of their necks, and they would not leave him while life remained. The last time they saw the whale, she was in a very weak state from loss of blood, but still remaining by the debris of the boat. And now, for three long weary hours, did they exert their energies to the utmost; but the current setting off, they had not gained more than a mile. The poor sailor was almost exhausted, and most began to think their ultimate safety doubtful. There was also a lad of sixteen, one of our own people, who was beginning to weary, so that the other two of the crew were obliged to keep by his side, to encourage him. That which seemed to alarm the lad more was the presence of immense sharks, whose fins were continually coming in contact with his legs. At this time their perilous situation was unknown to the other boats, or to us on shore.

"At length my son Fletcher, seeing nothing of Young's boat for several hours, left off chasing the whales, and went in quest of him. After a search of some time he concluded the boat must have landed, and began to think of doing so himself, as what are technically called 'the chances' of the day were over. While rowing leisurely along shore, about a mile from the land, Fletcher, who was standing up steering, fancied he heard something like a distant shouting, or calling. Having mentioned this to the boat's crew, they ceased pulling, and surveyed the adjacent ridge, which came down nearly to the water's edge, thinking it might be some one desirous of telling them in what direction the other boats were. But they could see no one. Presently they heard the same sounds again, and then, after a short interval, a third time.

"Fletcher and his crew were now of opinion that it was from seaward the voices proceeded. Having come to this conclusion, the boat's head was turned in that direction, and 'Spring, boys, there's help needed somewhere,' was the prompt conclusion, and they bent to their oars with a good will. After pulling nearly a mile, the steersman, who had perched himself on the gunwale, fancied he saw three black spots on the water, about the size and appearance of cocoa nuts, and quickly became assured they were human heads.

"Thinking these were all that were left of the crew of Young's boat, he became so affected that he sunk down in the stern sheets, and could not utter a word. This, of course, alarmed the boat's crew, but he speedily recovered himself, and simply said, 'Pull, boys, there they are just ahead!' Soon they had the three on board, but they were actually afraid to ask what had become of the other three, fearing they were either drowned or eaten by the sharks; but one of the escaped men said, 'Pull on, the others can't be far off:' and about half a mile further on, the others were happily met with, but in a most exhausted state; humanly speaking, another half-hour would have sealed their fate.

"And now for ourselves, who were on shore. Many of us, both male and female, were assembled on the pier, looking at a young whale which had been killed the day before, when a boat appeared rounding the Windmill point! All eyes were directed towards her, and some

one remarked, 'There are more than six people in that boat; some accident has happened!' Our faces blanched, and our hearts beat quick on hearing these remarks. After a few moments' silence, and as the boat drew nearer we attempted to count the number on board. Having no glass at hand, we could only perceive nine. Three are gone, was the mournful conclusion; but whose husband, son, or brother? I now ventured to ask, but with bated breath, 'Who's steering the boat?' 'Fletcher,' was the prompt reply:—the only son I had out that day. Did I feel a relief? Wasn't it selfish? I can answer the first query; let casuists decide the second.

"After a little further scrutiny of the quickly approaching boat, a tenth person was discovered, and then the eleventh; they were seated among the rowers. At last the twelfth was discerned seated low in the stern, with his head resting on the gunwale. Yes, they were all there, but this last undoubtedly injured. Well, the pier was soon rounded, and as soon as they came within hale, 'All right?' was our half fearful interrogatory. 'All right, thank God,' was the subdued, but cheerful response. No one was hurt, and the man leaning on the side of the boat was the English sailor, still weak and pallid; our people had stuck by him to the endangering of their own lives. What a picturesque appearance they exhibited; some with trousers and no shirt, others with shirts and no trousers, for the swimming party had divested themselves of all incumbrances, even to nudity; and those in the boat had shared their garments with them, which were not many, as the weather was intensely warm. However here they were all mercifully preserved. And I am sure all hands were unfeignedly thankful, for tears of joy plentifully bedewed the faces of all present."

After such a trial as this it would seem that nothing can come amiss to them in their element the sea. However Norfolk Island is far better adapted for them than their old one. We find the following notice of it and of the new settlers in a recent Sandwich Island paper:

"It was to this island that the British Government transferred the Pitcairn's Islanders, when they became too numerous for their native island. But after being transported thither, they longed so for their old home, that some were taken back, while others remained. The latter have increased so that they now number about three hundred; but there is ample room for them to continue to increase even till they number thousands, as they undoubtedly will within fifty or sixty years, as they are very prolific.

"One of the English Missionary Societies has established a mission on this island, chiefly to teach natives. From a letter written by one of these missionaries, we extract a paragraph, which will give some idea of the characteristic features of the island:

"Perhaps your readers scarcely need reminding that Norfolk Island is a little grassy island some five miles long, containing about 9,000 acres. The old convict town, with its huge dilapidated barracks and gaols, officers' houses and servants' huts, is situated on the S.E. edge of the island, where the little Nepean Islet gives shelter enough to form a precarious roadstead available in certain winds. This old town is occupied

by the ex-Pitcairners now, some 300 strong, all told. Three miles from this across the island, on its north-eastern shore, and communicating by a fair road with 'the town,' and also by a fair road some three miles long, with the other eastern landing-place at Cascade Bay, lies the Mission estate of about 1,000 acres, facing north, and sloping gently down to low cliffs and a rocky shore. The land—a low table flat, broken by gentle gullies—is a light red soil, of fair quality, covered naturally by a close growth of wild couch grass, sprinkled, after a beautiful park-like fashion, with Norfolk Island pines and 'white oak,' while the gullies and flanks of 'Mount Pitt' (the chief hill of the island), 1,000 feet high, are full of thick growth of a wild lemon scrub, tree ferns, wild cotton and wild tobacco, and guava. On a slight ridge, half a mile from the sea stand the scattered group of wooden mission buildings."

Lady Belcher's book is by no means a repetition of the mutiny story. It is a highly interesting narrative of the fortunes of the settlers, after leaving Pitcairn Island illustrated with a little chart, and some very interesting views as well as portraits, altogether as neatly got up as a lady's book should be.

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## THE MONARCH.

WE find the following in the *Daily News*, and insert it without comment further than observing that we need not be surprised at the catastrophe of the *Captain*.

We are authorised to make public the results of the recent experiment made for ascertaining the precise position of the centre of gravity of the *Monarch*, and of the calculations based thereon for measuring the exact amount of her righting force at every angle of inclination.

As these results would have no public interest except in a comparative form, the particulars given are confined to those which have been already made public in the recent inquiry into the loss of the *Captain*, in order that the comparative stability of the two ships at their deep-load draught of water may be seen.

The results are such as must reassure any persons who inferred from certain points of similarity in the two ships that the *Monarch* was not as seaworthy as has been hitherto supposed.

| | *Monarch.* | *Captain.* |
|---|---|---|
| Angle at which the edge of the deck is immersed ..... | 28° | ... 14° |
| Amount of righting force in the above position in foot tons ..... | 12,542 | ... 5,700 |
| Angle of maximum stability ..... | 40° | ... 21° |
| Maximum amount of righting force in foot tons ..... | 15,615 | ... 7,100 |
| Angle at which the righting force becomes zero ..... | 69½° | ... 54½° |
| Reserve of dynamical stability at an angle of heel of 14° in foot tons ..... | 6,500 | ... 410 |

The best measure of the corroborative power of the two ships to resist upsetting, after a given angle of inclination is reached, is to be found in the dynamical stability. This is seen to be at an angle of permanent heel of 14°—nearly sixteen times as great in the *Monarch* as it was in the *Captain*. In other words, if both ships were inclined under sail at the angle which immersed the edge of the *Captain's* deck, the reserve of energy to prevent upsetting by a squall would be in the two ships in the proportion of sixteen to one.

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## The Editor's Farewell to the Nautical and its Friends.

The Nautical Magazine, in the hands of its present manager, has run its course of thirty-nine years. Originally established in the cause of Hydrography, it has seen radical improvements in the seaman's chart, and those instructions by which it is accompanied, to which through its pages the trading merchant commanders afloat have largely contributed. Many a supposed danger has also been swept from the chart by its means; and this is no longer disfigured, by that herd of *vigias*, left on it by the ancient navigators.

Among the subjects which it has specially advocated, which entirely concern the seaman, next to Hydrography, stands the successful cause of the Lightning Conductors of Sir William Harris, that scourge of lightning which formerly decimated our ships of war is no longer known to them:—the Hurricane Theory of Redfield (now passed into a science) was first introduced into it from his own hand:—It was also the first to disclose those enormous depths of the ocean, obtained by a method of the late Hydrographer to the Admiralty, Sir Francis Beaufort, which has since been replaced by one that secures a more perfect examination of those depths by lead and line, specially prepared for that purpose, by which the various successful deposits of the Electric Cable have been made.

The pages of the *Nautical* have been ever open to expose abuses, and failings of maritime law; and they have ever been the receptacle of that humble, but fugitive Hydrography of the merchant seaman, which would otherwise have been dissipated and lost.

The *Nautical Magazine* has contributed its efforts for the improvement of all that concerns the seaman's benefit; and the Editor now leaves to others that labour of love, which has been the mainspring of all his exertions in conducting this work.

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## To Correspondents.

J. Chapman on boats—Communication received—shall appear in our next.

# INDEX.

# LIGHTS.



END OF VOLUME XXXIX.

[illegible] and supported, and despite the numerous rocket and mortar stations ast, there remains the melancholy fact that an average of 700 lives nually on and around our own shores alone, proclaiming solemnly, ently, that, for humanity's sake, and for the national credit, no should be spared in providing every possible means for the convey- ccour to the shipwrecked.

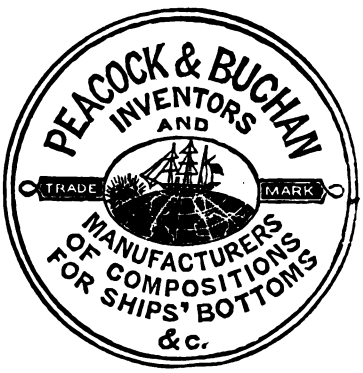
ife-boat Institution needs at least a permanent income of £20,000 n its great fleet of 220 Life-boats; and the Committee feel assured

# Prize Medal, awarded

AT THE

# Havre Exhibition of 1868,

TO




THEIR

## Number 1

COMPOSITION (light green) is admirably adapted for preserving copper or yellow metal sheathing from waste; making it last three times as long by giving an annual coating; and returning a much greater percentage of old metal than if left to its ordinary wear without coating.

THEIR

## Number 2

ANTIFOULING COMPOSITION (pink) *contains no copper*, and is prepared exclueively for the bottoms of

## Iron Ships,

protecting the plates and rivets from corrosion or galvanic action, and from ordinary *fouling*; also giving additional speed, as shortly after immersion the surface becomes slimy *like the back of a fish.*

**Their New "TOPDRESSING," or Exfoliating Soap Mixture, over ONE coat of No. 2, will take a Ship round the World with a clean bottom AT A VERY SMALL COST. 4 cwt. of "TOPDRESSING" will coat a Ship of 1000 tons at a cost of £10.**

Their **Number Three** Composition is prepared in fifteen shades of colour, for Ships' topsides, 'tweendecks, cabins, boats, spars, &c., and is, like the other numbers quoted above, *mixed ready for immediate use*, it stands better than ordinary paint without blistering—washes well—dries quickly, keeps well in *any climate*, being put up in hermetically sealed cans from 7 lbs. upwards, and does not deteriorate; *enabling every man to be his own painter in any part of the world. The Royal National Lifeboat Institution* adopted it in 1862, and find it *very economical* and lasting. *See Pamphlet, pages* 69 *to* 84.

Their **Number Four** Composition (copper colour) is prepared for single bottomed vessels, ships' bends, the bottoms of lighters, barges, droghers, and boats; protecting them from worm and fouling; also for preserving railway sleepers, telegraph posts, gate posts, &c., from white ant and decay *(see pages* 85 *to* 91 *in Pamphlet).*

PEACOCK AND BUCHAN'S *new* anticorrosive metallic paint for all ironwork out of salt water will be found cheaper and better than *red lead.*

**The Peninsular and Oriental Co., the Royal West India Mail Co., the Pacific Steam Navigation Co., African Royal Mail Co., Australian S. N. Co.,** &c., and many other great companies still use Messrs. Peacock and Buchan's *economical* Compositions on the bottoms of their magnificent Fleets, in preference—after repeated competitive trials with every other known composition in all parts of the world.

Shipowners are now alive to the importance of avoiding PREPARATIONS OF COPPER AND MERCURY, after the fearful destruction recently evinced by galvanic action on the plates and rivets of many iron and composite ships (*see pages* 1 *to* 37 *and appendix in Pamphlet*).

The **British Admiralty** are now using Messrs. Peacock and Buchan's *economical* Compositions on *many* of the Iron Ships of the Royal Navy, and the reports are very favourable in comparison with the numerous applications their Lordships are patriotically and periodically trying from other inventors: most of whom use *copper* or *mercury* as a base, and are *very expensive*, without any comparative advantages.*

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NOVEMBER, 1870.

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[P.T.O.

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I am, yours, etc.,

(Signed) F. B. RENSHAW, Lieut. R.N.

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*From Captain H. T. Burgoyne, R.N., V.C. of Iron Turret Ship Wyvern.*

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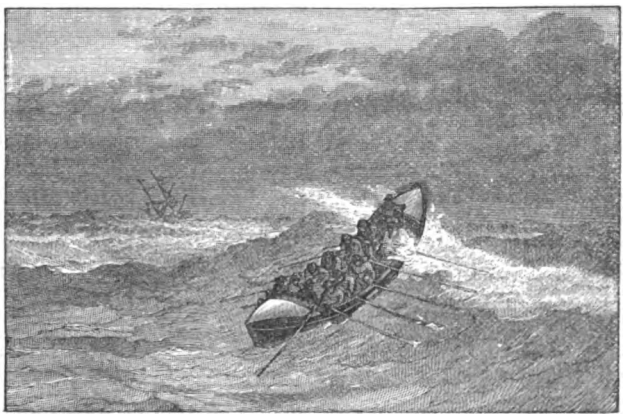

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| | | | £. s. d. |
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| Vessels saved by them | .. | **1183** | .. |
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[Turn over.

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Swansea.

**Carmarthenshire.** . Llanelly and Pembrey, No. 1.
" No. 2.
130 Carmarthen Bay.

**Pembrokeshire** . Tenby.
Milford.
Solva.
St. David's.
135 Fishguard, No. 1.
" No. 2.

**Cardiganshire** . Cardigan.
Newquay.
Aberystwith.

**Merionethsh.** 140 Aberdovey,
Barmouth.

**Carnarvonsh.** Portmadoc.
Abersoch.
Porthdinllaen.

**Anglesey** . 145 Llanddwyn.
Rhoscolyn.
Holyhead.
Cemlyn.
Bull Bay.
150 Moelfre.
Penmon.

**Carnarvonsh.** . Orme's Head.

**Denbighshire** . Llandulas.

**Flintshire** . . Rhyl (Tubular)

### ENGLAND (*continued*).

**Cheshire** . .155 New Brighton No. 1.
Do. (Tubular) No. 2.

**Lancashire.** . . . Southport.
Lytham.
Blackpool.
160 Fleetwood.
Piel.

**Isle of Man** . . . Castletown.
Douglas.
Ramsey.

**Cumberland** . .165 Whitehaven.
Maryport.
Silloth.

### COTLAND.

**Kirkcudbright** . . Kirkcudbright.

**Wigtonshire** . . . Whithorn.
170 Port Logan.

**Ayrshire** . . . . Ballantrae.
Girvan.
Ayr.
Irvine.
175 Ardrossan.

**Isle of Arran** . . Kildonan.

**Argyllshire** . . . Campbeltown.
Southend.

**Caithness-shire** . . Thurso.

**Orkney Islands** .180 Stromness.

**Elginshire** . . . . Lossiemouth.

**Banffshire** . . . Buckie.
Banff.

**Aberdeenshire** . . Fraserburgh.
185 Peterhead.

**Kincardineshire** . . Stonehaven.

**Forfar** . . . . . Montrose, No. 1.
" No. 2.
Arbroath.
190 Buddon Ness } Dun-
Broughty Ferry } dee.

**Fifeshire** . . . . St. Andrew's.
Anstruther.

**Haddingtonshire** . . North Berwick.
195 Dunbar.

### IRELAND.

**Co. Londonderry** . . Greencastle.

**Antrim.** . . . Portrush.

**Down** . . . . Groomsport.
Ballywalter.
200 Tyrella, Dundrum Bay.
Newcastle, do.

**Louth** . . . . Dundalk.
Drogheda.

**Dublin** . . . . Skerries.
205 Howth.
Poolbeg.
Kingstown.

**Wicklow** . . . Wicklow.
Arklow.

**Wexford** .210 Courtown.
Cahore.
Wexford, No 1.
" No. 2
Carnsore.
215 Duncannon.

**Waterford** . . Tramore.
Dungarvan.
Ardmore.

**Cork** . . . . Youghal.
220 Ballycotton.
Queenstown.
Courtmacsherry

**Kerry** . . .223 Valentia.

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"Each Life-boat to have a Coxswain Superintendent, with a fixed Annual Salary of £8, and an Assistant Coxswain.

"The Life-boat to be regularly taken afloat, fully manned and equipped, once during each quarter, so that the Crew may be familiar with her qualities and proper management. On every occasion of exercise, the men are to be paid 4s. each; and on every occasion of going off to a Wreck to save Life, each man of the Crew to receive 10s. by day, and £1 by night. These payments to be doubled on occasions either of extraordinary risk or of long exposure.

"The Life-boat is to be kept on her Carriage, in the Boat-house, with all her gear in her ready for use. Signals are agreed upon for calling the Life-boat's crew together; and immediately on intimation of a Wreck, or Vessel in distress, the Coxswain is to muster his Crew, who are to put on their Life-belts, launch the Boat, and proceed to her assistance.

"The Local Committee to report to the Institution as to the behaviour of the Boat during exercise, to point out any defect that may be remedied, and to offer any suggestions that may conduce to the efficiency of the service."





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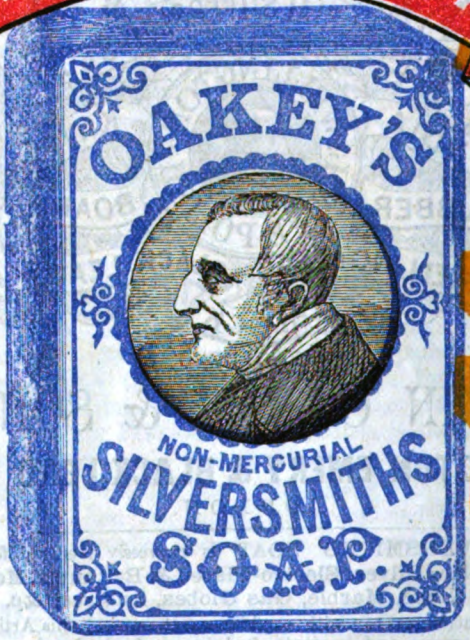


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