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THE
NAUTICAL MAGAZINE

AND

NAVAL



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No. 1, FOR



JANUARY,

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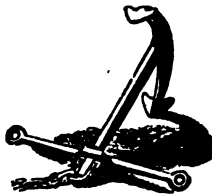
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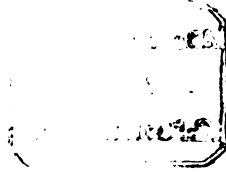
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THE
NAUTICAL MAGAZINE

AND

Naval Chronicle.

JANUARY, 1866.

THE JAMAICA MASSACRES.

Whatever may be the result of the inquiry to be instituted by her Majesty's government into the late disgraceful proceedings in Jamaica under its governor, Mr. Edward John Eyre, there is one feature of those proceedings which we are entitled to point out as something new in naval history. Whether legal or illegal will be decided hereafter; but in either case these proceedings are of so disgusting a nature that it is right we should know the kind of extra duties the navy is or is not required by rules of H.M. service to perform. The duty to which we allude is the holding of courts martial by naval lieutenants, with the power of life and death, in determining what is constitutional and what is rebellion in municipal law. And the directing of our seamen to flog negroes with the cat in the same manner as if they were on board ship. There is a character about this latter proceeding which in our view of it is so thoroughly disgusting and degrading in our estimation of the duties of naval officers, that we shall deeply regret to learn that such a one is legal. It may be then indeed considered a new duty, and we shall expect to hear occasionally of the services of naval officers being called for to "cat," as it is called, any refractory niggers, as slave drivers did in former days;—or, in other words, to flog them right or wrong at the will and pleasure of any shore official under the plea of an imagined rebellion. We trust such an occupation is not to be anticipated as to be hereafter included among the duties of naval officers. And how such proceed-

ings as we shall here place on record have been authorised by those in Jamaica, is beyond all our powers to account for.

Those proceedings would require a large volume to relate, for from our apprehension the rottenness of the whole system of government in that unfortunate island commences at the very core. Yet we shall confine ourselves principally to the accounts which have appeared in the prints of the day. Still there are one or two documents which have obtained additional interest from their prominence in the late events, and these are the original letter of Dr. Underhill, and another of the man who has become a martyr to the cause of the negro in that misruled land, Jamaica, the late Mr. G. W. Gordon. But we have a kind of key to the origin of the proceedings in the following extract of a letter from the island, that says :—

“The planters have at length been gratified. They have been wishing for years to wreak their vengeance on the poor dark-coloured race for obtaining their emancipation, and for refusing to work for men who would pay and treat them as pariahs. The planters have found willing tools in Governor Eyre and General Nelson. Of course the British government will support their own officers. Scores of poor blacks have been flogged and hung who had no more to do with the insurrection than the people of England. Every coloured man who has expressed himself dissatisfied with taxation, or who has associated with those who have done so, has been hunted down. English soldiers and sailors seem to have forgotten their manliness and have taken the most fiendish delight in torturing the poor creatures who have been handed over to them. If ever there was a martyr it is poor Gordon. What would have been said if Richard Cobden had been put to death for advocating the claims of English operatives against the selfishness and oppression of English landowners. Will the English press and the religious bodies in England take the matter up I wonder, and prevent the whole race of Englishmen from being charged with being liable to be ridiculously panic-stricken, and to be guilty of the most atrocious inhumanity? The poor blacks here have suffered for the Indian mutiny. The insurrection has been brought on by bad government, and a few cut-throats such as are found in any country took advantage of a political riot to sack and murder. But why should a whole race suffer? Alas, I fear the wrongs and sufferings of the African race are to be eternal.”

The foregoing gives us an insight at once to the “vengeance” which has been for years preparing for the unfortunate negroes of Jamaica, for the execution of which a ready mind has been found in Governor Eyre, and our “sailors seem to have forgotten their manliness in torturing the poor creatures (negroes) who have been handed over to them.” We shall see how truly this has been verified.

But first we will record here the letters to which we have alluded. To the original letter of Dr. Underhill has been attributed the outbreak. But this was written to our Colonial office with the best of

intentions. Sent from thence to Governor Eyre for his report, and not for that publicity which he gave it in the island.

33, *Moorgate Street, January 5th, 1865.*

I venture to ask your kind consideration to a few observations on the present condition of the island of Jamaica. For several months past every mail has brought letters informing me of the continually increasing distress of the coloured population. As a sufficient illustration, I quote the following brief passage from one of them:—"Crime has fearfully increased. The number of prisoners in the penitentiary and goals is considerably more than double the average, and nearly all for one crime—larceny. Summonses for petty debts disclose an amount of pecuniary difficulty which has never before been experienced; and applications for parochial and private relief prove that multitudes are suffering from want little removed from starvation." The immediate cause of this distress would seem to be the drought of the last two years; but, in fact, this has only given intensity to suffering previously existing. All accounts, both public and private, concur in affirming the alarming increase of crime, chiefly of larceny and petty theft. This arises from the extreme poverty of the people. That this is its true origin is made evident by the ragged and even naked condition of vast numbers of them; so contrary to the taste for dress they usually exhibit. They cannot purchase clothing, partly from its greatly increased cost, which is unduly enhanced by the duty (said to be thirty-eight per cent. by the Hon. Mr. Whitelocke) which it now pays, and partly from the want of employment, and the consequent absence of wages.

The people, then, are starving; and the causes of this are not far to seek. No doubt the taxation of the island is too heavy for its present resources, and must necessarily render the cost of producing the staples higher than they can bear to meet competition in the markets of the world. No doubt much of the sugar land of the island is worn out, or can only be made productive by an outlay which would destroy all hope of a profitable return. No doubt, too, a large part of the island is uncultivated, and might be made to support a greater population than is now existing upon it.

But the simple fact is, there is not sufficient employment for the people; there is neither work for them nor capital to employ them. The labouring class is too numerous for the work to be done. Sugar cultivation on the estates does not absorb more than 30,000 of the people, and every other species of cultivation (apart from provision growing) cannot give employment to more than another 30,000. But the agricultural population of the island is over 400,000, so that there are at least 340,000 whose livelihood depends on employment other than that devoted to the staple cultivation of the island. Of these 340,000 certainly not less than 130,000 are adults and capable of labour. For subsistence they must be entirely dependent on the provisions grown on their little freeholds, a portion of which is sold to those who find employment on the estates; or, perhaps, in a slight

degree, on such produce as they are able to raise for exportation. But those who grow produce for exportation are very few; and they meet with every kind of discouragement to prosecute the means of support, which is as advantageous to the island as to themselves. If their provisions fail, as has been the case, from drought, they must steal or starve. And this is their present condition. The same result follows in this country when employment ceases or wages fail.

The great decrease of coin in circulation in Jamaica is a further proof that less money is spent in wages, through the decline of employment. Were Jamaica prosperous silver would flow into it; or its equivalent in English manufacture, instead of the exportation of silver, which now regularly takes place. And if, as stated in the governor's speech, the customs revenue in the year gone by has been equal to former years, this has arisen, not from an increase in the quantities imported, but from the increased value of the imports, the duty being levied at an *ad valorem* charge of 12½ per cent. on articles such as cotton goods, which have within the last year or two greatly risen in price.

I shall say nothing of the course taken by the Jamaica Legislature; of their abortive immigration bills, of their unjust taxation of the coloured population, of their refusal of just tribunals, of their denial of political rights to the emancipated negroes. Could the people find remunerative employment these evils would in time be remedied, from their growing strength and intelligence. The worst evil consequent on the proceedings of the legislature is the distrust awakened in the minds of capitalists, and the avoidance of Jamaica, with its manifold advantages, by all who possess the means to benefit by their expenditure.

Unless means can be found to encourage the outlay of capital in Jamaica in the growth of those numerous productions which can be profitably exported, so that employment can be given to its starving people, I see no other result than the entire failure of the island, and the destruction of the hopes that the legislature and the people of Great Britain have cherished with regard to the well being of its emancipated population.

With your kind permission I will venture to make two or three suggestions, which, if carried out, may assist to avert so painful a result.

1st. Searching inquiry into the legislation of the island since emancipation, its taxation, its economical and material condition, would go far to bring to light the causes of the existing evils, and, by convincing the ruling class of the mistakes of the past, lead to their removal. Such an inquiry seems also due to this country, that it may be seen whether the emancipated peasantry have gained those advantages which were sought to be secured to them by their enfranchisement.

2nd. The governor might be instructed to encourage, by his personal approval and urgent recommendation, the growth of exportable produce by the people on the very numerous freeholds they possess.

This might be done by the formation of associations for shipping their produce in considerable quantities; by equalising duties on the produce of the people and that of the planting interests; by instructing the native growers to produce in the best methods of cultivation, and pointing out the articles which would find a ready sale in the markets of the world; by opening channels for direct transmission of produce without the intervention of agents, by whose extortions and frauds the people now frequently suffer, and are greatly discouraged. The cultivation of sugar by the peasantry should, in my judgment, be discouraged. At the best, with all the scientific appliances the planters can bring to it, both capital and machinery, sugar manufacturing is a hazardous thing. Much more must it become so in the hands of the people, with their rude mills and imperfect method. But the minor products of the island, such as spices, tobacco, farinaceous food, coffee, and cotton, are quite within their reach, and always fetch a fair and remunerative price, when not burdened by extravagant charges and local taxation.

3rd. With just laws and light taxation, capitalists would be encouraged to settle in Jamaica, and employ themselves in the production of the more important staples, such as sugar, coffee, and cotton. Thus the people would be employed, and the present starvation rate of wages be improved.

In conclusion, I have to apologise for troubling you with this communication; but since my visit to the island in 1859-60, I have felt the greatest interest in its prosperity, and deeply grieve over the sufferings of its coloured population. It is more than time that the unwisdom (to use the gentlest term) that has governed Jamaica since emancipation should be brought to an end; a course of action which, while it incalculably aggravates the misery arising from natural, and therefore unavoidable causes, renders certain the ultimate ruin of every class—planter and peasant—European and Creole.

Should you, sir, desire such information as it may be in my power to furnish, or to see me on the matter, I shall be most happy either to forward whatever facts I may possess, or wait upon you at any time that you may appoint.

I have, &c.,

EDWARD B. UNDERHILL.

To the Right Hon. Edward Cardwell, M.P., &c.

P.S.—I append an extract from the speech of the Hon. H. A. Whitelocke in the House of Assembly, with respect to the condition of the people.

“He (Mr. Whitelocke) would make an assertion which could not be gainsaid by his successor, that taxation could not be extended; nor one farthing more could be imposed upon the people, who were suffering peculiar hardship from the increased value of wearing apparel, which was now taxed beyond all bounds: actually they were paying thirty-eight per cent. now, when twelve and a half per cent.

was before considered an outrageous *ad valorem* duty. Cotton goods, including Osnaburg and all the wearing apparel of the labouring classes, had increased 200 per cent. in value. What was bought at fourpence per yard before was selling at a shilling per yard. Therefore the people are now paying a penny halfpenny duty on every yard of cloth, instead of one halfpenny, which has been justly described as a heavy impost. The consequence is that a disgusting state of nudity exhibited itself in some parts of the country. Hardly a boy under ten years of age wore a frock, and adults, from the ragged state of their garments, exhibited those parts of the body where covering was especially wanted. The lower classes hitherto exhibited a proneness for dress, and he could not believe such a change would have come over them, but for his belief in their destitution, arising out of a reduction in their wages, at a time when every article of apparel had risen in value. This year's decrease in imports foreshadowed what was coming. Sugar was down again at £11 per hogshead; coffee was falling; pimento was valueless; logwood was scarcely worth cutting, and, moreover, a sad diminution was effected in our chief staple exports from a deficiency of rain."

So says Dr. Underhill, and one would have supposed that the excellent motive which he had at heart would have been encouraged; that the governor would have rejoiced to have had pointed out to him any weak points in the government of the island, that he might have adopted the proposal, and himself have led the way for their amendment. But instead of this we hear of his publishing the letter, (which holds out his own mismanagement,) and deprecating it as the cause of those miseries which have ensued in the island, and which were really originated by soldiers firing on and killing the negroes.

But Mr. Gordon, as well as Dr. Underhill, was endeavouring to better the condition of the unfortunate negroes, and here is what he has stated to our colonial office, and which statements have contributed to bring him under the sentence of as ruthless a court-martial! as ever sat.

Jamaica, March 24th, 1865.

Sir,—I have to bring to your notice, on behalf of the people of this country, the following facts, which are submitted as grievances.

The House of Assembly, as at present constituted, by reason of the restrictions in the election law, (which has been amended only to a very limited extent,) cannot be said to be a fair representation of popular rights; therefore it becomes more for the mother government to exercise that vigilance which in former times so greatly tended to the protection of the lately emancipated classes, and it is much to be regretted that such is not continued to be the case.

From gross mismanagement, and for wasteful purposes, the taxation of the country is increased, without corresponding benefit to the general community. A flagrant illustration of this may be found in the history of the "Tramroad" affair, which, besides having involved the country in a heavy expenditure of money, creating additional

taxation, has also, by interfering with the principal public road, caused serious loss of stock to the passengers, and irritated the minds generally of the people who traffic on this thoroughfare. We here find a sample of the ruinous consequences of misconducting public affairs; but ere this is got over, the governor, in his opening speech, recommends a project for a "Slip Dock," which work, if at all necessary, is of a speculative nature, and such as a company may be encouraged by the government to undertake; but certainly it is not for the public to adventure, nor one for which the people should be taxed. The island has no navy which requires such an undertaking, and therefore it can only be considered as a strictly commercial enterprise. But how then are the people to be taxed for this purpose? As well may any other company more necessary and likely of success be taken up by the government, such as a "Soap Manufactory," a "Sugar Refinery," an "Agricultural Bank," or a "Railroad to Old Harbour."

The great question is, is it constitutional to tax the people for speculative enterprises? and is the island prepared to undertake the duties of private companies, and to conduct a slip dock, with all its contingences and doubtful results, in the face of absolute expenditure likely to involve not only a present but a future loss, and increased taxation upon the people? It is a laid down principle that no government is justified in acting in this manner. It is contrary to sound political economy, and its tendency is evil; yet we find that, even without detailed estimates or statements of annual expenditure and income, the governor has sanctioned such a measure, which, having been opposed when first introduced into the Assembly, was withdrawn, and subsequently brought forward at the end of the sessions, when the quorum was reduced to nine—hardly that number being present—and passed, as it were, to the surprise of the good sense of the country. This is a measure which, if allowed to take effect, will create new heartburnings in the minds of the inhabitants generally, and is a great public wrong.

A bill of a most objectionable nature was passed under circumstances similar to those above stated. It is to inflict corporal punishment for "petty offences." This is a measure unparalleled in the present history of British legislation, and is so degrading and wicked in its tendency as to create feelings of alarm. A public meeting has already been held against it in Kingston. A copy of the resolutions I shall send, and I believe other meetings or memorials are intended. The penal clauses of this bill are confined to second convictions; but for what offence? A shrub, a reed, or plant, in an unenclosed or enclosed land, &c. It will not be hard in a country like this to find a second offence, which may be of a comparatively innocent nature, tortured for malignant purposes. While this is intended to operate for minor offences, the greater evils of society—forgery, burglary, cattle-stealing, &c.—are all left out, so that this measure is strictly one aimed against the lower classes, who, just now, are in a state of great destitution. And, honourable sir, if you could only behold

them, I opine that your feelings of compassion would be aroused to mercy and relief, instead of the infliction of "corporal punishment," which is death, or next to it. And I fear the indignation which may arise from this evil measure will be such as to have serious consequences. Representations, unfounded and uncharitable, may be wickedly made against the peasants of this country, but in good truth, they are as peaceable, civil, and well disposed as any people can well be, and their character cannot justly be unfavourably compared with those of the labouring classes of Great Britain, the continent of Europe, or America. What they require is what has been neglected—attention to their sanitary improvement and education, parochial asylums for orphans and adults, and relief to some extent from the excessive taxation on the necessary articles of food and clothing, which in its tendency produces that destitution which leads, here as in other countries, to a great extent to petty larcenies. These are the points which should have been attended to, but which are lost sight of for the debasing purposes of the whip, as if that will instil principles of morality, or supply the mental and bodily wants of a poor suffering community.

I do trust that, after due reflection, you may be led to consider the measure in its odious and injurious light. It seems to me an evil of the greatest magnitude, and shows to what extent inconsiderate feelings still exist in Jamaica.

But the manner in which the bill passed the Assembly is discreditable to the government, as may be seen by the division on the question, and by which you will perceive it did not pass with the feelings of the country. The members of the government, after allowing it to remain on the table of the house for nearly three months, did not give any intimation of its being taken up, but seized upon an opportunity, and in two hours passed about four bills of a most important nature, at the same time suspending all the rules of the house, in order to put them through all their stages within this time;—this did not seem to be a creditable proceeding. A bill was also passed on the same occasion, and under similar circumstances, to re-establish a District Prison at Port Maria. This bill also provides that hard labour shall include the "treadmill," "shot drill," and "crank."

Immediately after the emancipation the treadmill was introduced into use in this island, but soon it was discovered that its severities and tortures, as exercised here, were diabolical, and the governor of the island, as well as the Colonial Secretary, determined that it should be abolished, and not one was allowed to be used, or even to remain in the prison; yet we find after a lapse of thirty years, when we had a right to expect better things, a British government sanctioning such a thing. But this said Port Maria is really the grave of Jamaica. During cholera its population was nearly entirely swept away by that disease, and Dr. Milroy, the skilful medical inspector sent from England by the government, condemned it, above all other places in the island, as most unhealthy and death-like, and yet we find that the

prison which was abolished is again to be re-established, with the iron shackles to which the unfortunate prisoners have been consigned by the present governor, with hard labour.

From the injurious atmosphere of Port Maria a transfer of patients had frequently to be made to the public hospital of Kingston. From the depreciated state of health to which the prisoners must be reduced at Port Maria, many of them will leave the prison for ever after to be worthless and a tax on society. When it is remembered that many are sent to prison for very minor offences, under many cases wrongfully, and under long sentences, by erring judgment and unlearned justices, it does seem that it is a most cruel proceeding. I feel it a bounden duty to bring these subjects to your notice. The consequences I cannot control, but I sincerely trust that notwithstanding any explanation which will, no doubt, be tendered by the governor on these remarks, the facts only of the points may be considered. I have a conscientious assurance that I intend no undue reflections, and only write from the stern obligations of a sense of justice and common humanity.

I have, &c.,

G. W. GORDON.

To Right Hon. Edward Cardwell, M.P., &c.

The foregoing letter it is not necessary for us to comment on further than to add that its author shows himself to be a real friend to Jamaica and to her Majesty's government, although not considered as such by the government of Jamaica. But there is one subject to which Mr. Gordon alludes which we may illustrate, and that is the members of the House of Assembly, to show the kind of persons who carry on the affairs of the island. The following extract supplies this curious information.

It is crowded with ignorant, unscrupulous, and needy men, who seek admission to it partly in order to obtain protection from arrest for debt, and partly for the purpose of pushing their special pecuniary interests. The places of emolument under the government which the members hold sufficiently proclaim its corruption. It will hardly be believed in this country, where jealousy for the independence of the representative branch of the legislature secures the purity of the House of Commons, that the Jamaica Assembly contains the printer of the votes, the printer of the laws and government stationer, the official assignee for Middlesex, a government collector, a master in Chancery, two road inspectors, and four clerks of the peace; and that two members have recently obtained appointments—one as superintendent of prisons, at £500 per annum, and another as receiver-general, at £1,200 per annum. It would be well, however, if place-hunting and place-holding were the least venial features in the character of this House. That body includes members who have been condemned in the courts of justice for felony. We must forbear to illustrate this too painful subject;—but those who may wish to learn the names of late or present members of the Jamaica House of Assembly.

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sembly who have been convicted of purloining cheques and forging the name of the receiver-general; who have been expelled for embezzlement of money belonging to suitors in Chancery; who have been detected in extensive frauds on the Customs, and have been compelled in consequence to resign their seats; who have been dismissed from public situations for abusing posts under government; who have been expelled the House for misappropriation of moneys, will find those names, and the places they represented, fully set out in a pamphlet by a Thirty Years' Resident in Jamaica just published by Mr. Effingham Wilson, of the Royal Exchange.

This is the parliament whose measures are alluded to by Mr. Gordon in his letter above 'quoted, and for which with their governor our "blue-jackets" have been degrading themselves by flogging and shooting the wretched negroes of Jamaica.

The trial and sentence of Mr. Gordon which took place on a Saturday, and the result of which was not communicated until the following Monday, and that but one hour before his execution, has to be justified if it can be by the governor. But we read the following piece of ribaldry to which he was subjected before his trial that induces one to ask how a naval officer, whom it is to be presumed was on shore with the blue jackets, could permit him to be assailed by the following indecent conduct. We read that—

"After George William Gordon had been brought ashore he was taken to the station, and there the scene presented is hardly describable. From one blue jacket you would hear, 'Which is that venerable parson Gordon?' From another, 'There he is,' (pointing to him.) From a third, 'I'll set the bloody dogs at you, you rascal.' From a fourth, 'I'd tear you up myself.' From the next, 'What is he a white man?' From another, 'By J—, he'll catch it: would you like to have a taste of the cat, you? You won't be long here, we'll soon string you up,' with other exclamations which would hardly be the thing to put to paper. Under each of these epithets George William Gordon seemed at each moment to have been more depressed, and I doubt not that if the blue jackets had been left to exercise their own will, he would have been torn to pieces alive. This picture, as I said before, is indescribable."

And we may add besides, most disgraceful. Where was the officer under whose command these "blue jackets" were employed? Where was he not to have prevented such a vulgar tyrannical display of cruel sarcasm as this? No wonder that Mr. Gordon felt even downhearted at such disgusting ribaldry from the *blue jackets* of her Majesty's royal navy! But with his dying words he forgave them. Here is his last letter from the hands of a friend:—

27, New Broad Street, E. C., November 30th.

Sir,—Sickening enough, in all conscience, are the details of the Jamaica butcheries perpetrated under martial law. The motto of the executioners appears to have been short shrift and a long rope. It is no fault of the press if the whole country has not read the ghastly account of the late Hon. G. W. Gordon's execution, in front of the

court house at Morant Bay. It is no fault of the *Times* and of some other journals if the Jamaica patriot does not stand before the world branded as a felon, and execrated as an inciter to rebellion and massacre. But the more that is known of his character, the higher will it stand, and the more loudly will public opinion condemn his murderers. Unless I greatly mistake it, too, it will demand that they be brought to trial for their crime. I have received a copy of his last letter. It was to his wife; an English lady, highly educated, who married him, notwithstanding his colour, because of his many noble qualities. Will it be believed that, although he was tried on the Saturday, the finding and the sentence of the court martial—composed of two lieutenants in the navy and an ensign of the 4th West India Regiment—were not communicated to him until one hour before his execution? Was this a refinement of cruelty! What does this condemned conspirator, traitor, and rebel do? He calls for pen, ink, and paper, and writes the following letter to his wife:—

My beloved wife,—General Nelson has just been kind enough to inform me that the court martial on Saturday last has ordered me to be hung, and that the sentence is to be executed in an hour hence; so that I shall be gone from this world of sin and sorrow.

I regret that my worldly affairs are so deranged; but now it cannot be helped. I do not deserve this sentence; for I never advised or took part in any insurrection. All I ever did was to recommend the people who complained to seek redress in a legitimate way; and if in this I erred, or have been misrepresented, I do not think I deserve the extreme sentence. It is, however, the will of my Heavenly Father that I should thus suffer in obeying His command to relieve the poor and needy, and to protect, as far as I was able, the oppressed. And glory be to His name; and I thank Him that I suffer in such a cause. Glory be to God the Father of our Lord Jesus Christ; and I can say it is a great honour thus to suffer, for the servant cannot be greater than his Lord. I can now say with Paul, the aged, "The hour of my departure is at hand, and I am ready to be offered up. I have fought a good fight, I have kept the faith, and henceforth there is laid up for me a crown of righteousness, which the Lord, the righteous Judge, shall give me." Say to all friends, an affectionate farewell; and that they must not grieve for me, for *I die innocently*. Assure Mr. Airy and all others of the truth of this. Comfort your heart. I certainly little expected this. You must do the best you can, and the Lord will help you; and do not be ashamed of the death your poor husband will have suffered. The judges seemed against me; and from the rigid manner of the court, I could not get in all the explanation I intended. The man Anderson* made an unfounded statement, and so did Gordon; but his testimony was different from the deposition. The judges took the former and erased the latter. It seemed *that I was to be sacrificed*. I know nothing of the man Bogle. I never advised him to the act or

* The same who obtained the warrant against Dick for trespass.—*L. A. C.*

acts which have brought me to this end. Please write to Mr. Chamerovzow, Lord Brougham, and Messrs. Hencknell and Du Buisson.

I did not expect that, not being a rebel, I should have been tried and disposed of in this way. I thought his Excellency the Governor would have allowed me a *fair* trial, if any charge of sedition or inflammatory language were partly [? fairly] attributable to me; but I have no power of control; may the Lord be merciful to him.

General Nelson, who has just come for me, has faithfully promised to let you have this. May the Lord bless him, and all the soldiers and sailors, and all men. Say farewell to Mr. Phillips, also Mr. Li-card, Mr. Bell, Mr. Vinen, Mr. Henry Dulasse, and many others whom I do not now remember, but who have been true and faithful to me.

As the general has come, I must close. Remember me to Aunt Eliza in England, and tell her not to be ashamed of my death. Now, my dearest one, the most beloved and faithful, the Lord bless, help, preserve, and keep you. A kiss for dear mama, who will be kind to you, and Janet. Kiss also Annie and Jane.* Say good bye to dear Mr. Davison and all others. I have only been allowed one hour. I wish more time had been allowed. Farewell also to Mr. Espent, who sent up my private letter to him. And now may the grace of our Lord Jesus Christ be with us all.

Your truly devoted and now nearly dying husband,
G. W. Gordon.

I asked leave to see Mr. Panther,† but the general said I could not. I wish him farewell in Christ. Remember me to auntie and father. Mr. Bamsey has for the last two days been kind to me. I thank him.

The dying man encloses his letter in an envelope, addresses it to his wife, and, last of all, jots down on the back of it, "Luke vi, 15 to 26." With his mind dwelling on the immediate future, he takes small heed of the present, and omits to date his last missive. He has been told he is to be hanged "in an hour," and then "the general has come." This is sufficient. Time to him is now nothing. Eternity everything.

Sir, my friend went to execution protesting his innocence—protesting that he did not even know Paul Bogle. There has not yet been produced a tittle of evidence disproving his assertion. If that circular of his, on the subject of the proposed meeting at Morant Bay was constructively treasonable and deserved the gallows, I can point to leading articles in the *Times* far more seditious, and am bold enough to affirm that, according to such judgment, the writers merit hanging, ten times higher than Haman.

I do not know whether the meeting at Morant Bay was held. The island papers contain no record of it, so we may conclude its results were not very inflammatory. That it was not illegal, nor seditious in

* These three are his sisters.—*L. A. C.*

† The minister who officiated at Mr. Gordon's Tabernacle.—*L. A. C.*

intent, we may infer from the requisition—signed by two hundred persons—having been agreed to by the Custos, the late Baron Ketelholdt, who fixed the day of meeting for the 12th of August, at eleven in the forenoon. The letter, “forming part of the evidence upon which Gordon was hanged,” was in circulation anticipatory of the meeting being held on the 31st of July.

No unprejudiced person can read Mr. Gordon's last letter without having the conviction of his innocence forced upon his mind. The man who, with the certain prospect of a violent death within one hour of his fate having been announced to him, could with such majestic, Christian calmness and resignation, pen such a letter as the above, was no rebel, no encompasser of treason, massacre, and rebellion.

He was a martyr.

If I may succeed in obtaining justice for his memory, his dying appeal will not have been made in vain to,

Sir, yours obediently,

L. A. CHAMEROVZOW.

The following appears to have been the composition of these *courts martial*:—

“In order to save time, two courts were formed—the one composed of Colonel Lewis, of the Saint Catherine's militia; Captain Espent, of the Kingston Militia; and Captain Astwood, of the Kingston Cavalry. The other composed of Second Lieutenant Brent,* commander of the gunboat *Nettle*; Second Lieutenant Herrington, commander of the gunboat *Onyx*; and Ensign Kelly, of the 4th West India Regiment. No time was lost in proceeding with the business of the courts, and at each five minutes condemned rebels were taken down under escort awaiting their doom. The courts martial sat until nearly five o'clock p.m., and at the close of the sittings twenty rebels were numbered among those sentenced to be hanged. I must here observe that these courts were conducted with marked military discipline; only three of the rebels brought before them escaped death. The court, composed of the naval and military officers, spared them not—every one brought before it was sentenced to be hanged.”

The proceedings of these courts seem to have emulated the desire

* These officers appear to be meant for those reported in the *Hampshire Telegraph* as follows. The sobriquet of “Second” Lieutenant applied in both cases arises from ignorance of naval matters.

The members of the court-martial which tried G. W. Gordon and others were Lieutenant Herbert Brand, commanding the gunboat *Onyx*, Lieutenant Errington, of the *Wolverine*, and Ensign Kelly, of the 4th West India Regiment. And it is since added by the *Daily News*: that “A West India paper states that the united ages of the three officers who tried the Honourable Mr. Gordon in Jamaica, and condemned him to death, did not amount to more than 70 years.

In fact, it seems to have been the duty of the senior officers to carry out the sentences of their *juniors*!

of the governor to "save time," by the following extract of a letter showing their mode of doing business:—

"Two courts were sitting and trying the prisoners. Very few words were required—such as, 'Do you know the prisoner?'—'Yes.' 'Where did you see him?'—'Amongst the mob with a stick and a bayonet'—death; others were found with stolen property—death. Some foretelling the outbreak and sharpening their cutlass—death; others for entering houses and demanding powder—death. And so they went on sending them off with a few minutes' trial, all pinioned and strongly guarded till sunset, when they were marched out and hanged in dozens together on the place of the late murders. After the executions they commenced flogging others that had been taken, and not being able to give a good account of themselves. They have hung and killed several hundreds, and flogged and transported any quantity. I am sick with the indifference shown to life, and I am happy to say that it is nearly over, and we have returned to Port Royal again."

We had intended to give, but must for the present reserve, especial cases of flogging which have been performed by our blue jackets.—"Catting," as it has been termed, and pretty severe it has been by the accounts, laid on in true man-of-war fashion. They are too numerous for our space, but they are attended with circumstances of brutal indifference to the wretched negroes that shall not be lost sight of. And we shall conclude our present remarks with the following extract from the *Daily News*, which, with a sense of humanity and justice to the name of Englishman, has been unsparing in showing up these atrocious proceedings in our fair but mismanaged colony, a proceeding which will ever redound to its honour.

The accounts by the last mail from Jamaica give a kind of winding up to the massacres, and here is what would appear to be the last of the floggings or, as they are styled in Jamaica, the cappings. The *Daily News* says:—

It is not less striking than its predecessors. Three men were hanged. Against one there seems to have been no evidence, except the possession of a gun which had belonged to Mr. Hire, and the receiver of plunder pleaded in vain that he had been the means of saving a white woman's life. But on account of previous good character three others, against whom similar evidence was tendered, were sentenced to *only a hundred lashes!* One of them seems to have created a sensation by the novelty of showing suffering and receiving mercy.

"Richard Thompson, the young African, after receiving eighty lashes, was ordered to be loosened from the gun by command of Lieutenant Brand, he having fainted under the infliction of his punishment. (This is the first case of the kind which has occurred during the execution of the punishments on rebels.) He lay for a long time insensible on the ground; but after he had been dashed with some cold water in the face, and given some of it to drink, he revived. Commander Brand having ordered him to get up and come forward, he came up to

him. But when the commander told him that there were twenty lashes remaining which he was to get, he entreated him to spare him, which was accordingly done; and the poor fellow, writhing under the pain from the wound inflicted by the lash, crawled away."

Another man, named Miles, a schoolmaster and reporter, was tried for having escaped out of custody before trial. It does not appear that anything else was charged against him, and the only witnesses were the officers in charge of the prisoners. He was sentenced to fifty lashes, the administration of which is thus chronicled:—

"It was Miles's lot to receive his lashes at the hands of a black-hand corporal of Marines, who is acknowledged by every one to lay them on prodigiously. Every stroke he deals is heard to descend with a heavy 'whoof' on the back of the recipient, and a dozen given by this stalwart arm are worth fifty of those from any other of the ship's crew. Miles seemed actually bent in two after he received his flogging."

It must also be kept in mind that the accounts of court-martial work we have hitherto received come only from a single town, that of Morant Bay. But it appears they were in progress also at Bath, six miles to the north, and probably also at Port Antonio. Of the doings at Bath we have only this account, by the Morant Bay special correspondent:—

"I heard yesterday afternoon from a gentleman, a resident of Bath, that although the executions have been less there than here, the flogging has far exceeded anything in Morant Bay. He says there must have been from 500 to 600 whipped, and that amongst these a number of them were women, no less than about 200!"

Let this stand as a specimen of the management of a British governor, who has pressed the services of the British navy to execute duties belonging to the overseers of the slavery of former days. Is this right? If so, it is a new duty in store for the gallant tars of the royal navy, and one which no humane breast will envy them. The *Daily News* adds this conclusion, in which we cordially concur.

Is it a horrible dream that we are all in, when we seem to see such things as these written down as the deeds of English soldiers, English sailors, English settlers, in an English colony? If a month ago a foreigner had told us that such things could be, how we should have scorned him. If they had been told us of Austrians in Italy, of Russians in Poland, of French in Algeria, how we should have invoked the curse of Heaven on the men who thus disgraced our common humanity! And now we must read them as done by ourselves not five weeks since, as done not in penalty but in "precaution;" as done not on evidence of violence, but on suspicion of stealing, or conviction of escaping; as done by Englishmen to women! Where can we hide our heads for shame and grief and horror at the incredible and indelible ignominy that has fallen on our name?

And we will add to this:—

Let us hope that there will yet come a day of retribution!

THE ROCAS AND THE WRECK OF THE "DUNCAN DUNBAR."

In the last number of the *Nautical Magazine* appears the statement of the loss of another fine English ship, the *Duncan Dunbar*, on that trumpery islet called the Rocas in the South Atlantic Ocean; and following the statement is the journal of one of the passengers of the ten days' miserable endurance to which they were subjected while on the islet when the *Onsida*, Captain Woolcott, delivered them from their sufferings. We have not as yet met with any report of an inquiry into the cause of this wreck. But the Rocas is not new to the pages of this journal. In our volume for 1856 appears a very good account of the islet by Lieutenant Parish, R.N., of the *Sharpshooter*, who planted some cocconut trees on them, four of which would seem to have been found by the *Duncan Dunbar*, and in our volume for 1857 is an account of the loss of another vessel the brig *E. D.*, of Liverpool, which terminated more fatally than that of the *Duncan Dunbar*, for her crew were literally starved to death. Their miserable journal appears in that volume, with some remarks of our own on the discreditable manner in which she and her crew perished. And in the same volume appears a communication from the Commander of the *Rob Roy* showing his attempt to communicate with the Rocas (that appear to have been observed by the ashore) and was prevented by a current of sixty miles in the twenty-four hours, by which the *Rob Roy's* boat was separated from her, and had some difficulty in regaining her.

But the tendency of all these remarks is to show the necessity of the utmost caution in passing this low dangerous islet and also particulars concerning it, and the dangers by which it is surrounded. With the view of making these better known we repeat Lieutenant Parish's account here.

On the 5th of March, 1856, I sighted the Rocas from the mast-head at 4h. 15m. p.m., bearing W.N.W., about nine miles distant, at which time we had no bottom with 46 fathoms. I then bore up N.W. to close the group, and on sounding at 5h. p.m. obtained coral bottom in 13 fathoms, the rocks not being even then in sight from the deck. I therefore determined on remaining in that position during the night, and consequently anchored in 12 fathoms, the highest rock being then first visible from the deck, bearing West, true.

At 6h. 40m. a.m. the next day I proceeded under steam to the N.W., giving the shore a berth of about five miles, until arriving on the N.W. side of the sand banks; where I anchored in 20 fathoms, coral bottom, at about two and a half miles from the shore, with the following bearings:—

Compass Bearings, Deviation 10° West.	}	Breakers southern extreme	S. 15° E.
		Middle of sand banks	S. 27° E.
		Highest rock of group	S. 42° E.
		Breakers eastern extreme	S. 50° E.

Whilst describing the semicircle, our soundings were 13, 14, and 15 fathoms until the group bore S.b.E., when there was no bottom with

70 fathoms. From this it appears that the shoalest water exists on the eastern side. A careful attention to the deep sea lead would alone betray to a vessel in doubt the vicinity of the shoal on approaching in that direction; when, if practicable, anchoring is a course strongly to be recommended, until daylight or clearer weather enables the Master to ascertain his true position.

"As the prevailing winds in that quarter will always enable a vessel bound North to choose a course either to the East or West of this shoal, I do not see that any masters would be justified in endeavouring to sight the same, a proceeding which might be attended with considerable danger and the benefits to be derived from which I am at a loss to conceive.

"Having landed on the eastern sandbank, I caused a number of coconuts to be planted thereon, which were furnished me by H. M. Consul at Pernambuco, with the view of their forming, in time, distinct land marks which will enable the place to be discerned at a much further distance than is now possible.

"From the means of the sights taken on board the ship and on shore, the position, as follows, may be relied on:—Centre of southern sand island, lat. $3^{\circ} 51' 25''$ S., long. $33^{\circ} 46' 23''$ W. of Greenwich.

"This position agrees as nearly as possible with that given by Baron Roussin, and as laid down on the English Government charts.

"The highest part of the bank may be set down at about ten feet above high water mark. Rise and fall of tide seven feet. We found the current to set W.N.W., true, between one and two miles per hour.

"There were many wrecks of vessels lying on various parts of the sandbanks, only one of which presented signs of having been recently cast on shore,—probably the remains of the English barque *Countess of Zeland*, lost during the month of October, 1855.

"Between two and three hundred bales of cotton, with some anchors, were also observed, and two large casks of fresh water were found high up on the beach out of the reach of the tides. This fact, combined with the place abounding with birds, which may be taken with ease, and the ground being almost covered with eggs, would enable a shipwrecked crew to exist on this group for a lengthened period.

J. E. PARISH, Lieutenant-Commander.

"From a plan of the shoal that accompanies the foregoing remarks transmitted by H. M. Consul abroad, it appears that the Rocas consist of three distinct patches of coral rock lying in a W.b.S. and E.b.N. direction. The easternmost is about a mile East and West, and half a mile broad. The middle one is scarcely a mile long, lying N.W. and S.E., having a good large patch of coarse grass. The westernmost is about the same size, lying East and West; and the edge of the coral bank which surrounds them is about three miles in length, about W.b.S. and E.b.N.; the whole being about eight miles in circumference. A remarkable rock, ten or twelve feet high, stands on the outer edge of the reef about half a mile due East (true) of the

eastern bank. A wreck lies on the eastern edge of the eastern bank and a hut stands on the western edge of it—the surface between them being covered with cotton bales.

“The sand hummocks are about ten feet above high water mark, and the rise and fall of tide observed was six or seven feet.

“A bank carrying fourteen and fifteen fathoms affords anchorage as far as *five miles* to the N.E. of the dry banks.

“In reference to the position of these dangers, it appears to have been carefully determined by M. Lartigne, an officer charged with the scientific operations of Baron Roussin during the construction of his charts of the Brazil coast. In chart No. 11 of his *Brazilian Atlas* we read that the geographical position of the isle of Fernando Noronha and that of the danger known under the name of Rocas have been verified and corrected by M. Lartigne in December, 1825, in the operations of the *Bayadere*. The positions assigned to these places may therefore be considered very exact.

“Now, by this chart of M. Lartigne, the place of observation adopted by the officer commanding the *Sharpshooter* is in lat. $3^{\circ} 55' 7''$ S., and in long. $33^{\circ} 46' 7''$, allowing the difference between Paris and Greenwich, and which position appears almost identical with that adopted by Raper, p. 702, vol. 1839, allowing for difference of place of observation and assuming that Raper takes the centre of the shoal. But this will show an error in the lat. of $4' 3''$ in that given by the *Sharpshooter*, which, in comparison with the superior means of the French surveyor, and already followed by Raper, cannot be retained.

“On the whole, Lieutenant Parish has made a very useful contribution to our knowledge of the state of the Rocas, that would have been still more acceptable had he completed his plan of the shoal, with the soundings on the bank eastward of it in all directions out to deep water.

“It was entirely the idea of Mr. Cowper, H. M. Consul at Pernambuco, to suggest the planting of the cocoanut trees on these shoals, and to carry out the measure through Lieutenant Parish, the Commander of the *Sharpshooter*. But we trust it will not have the effect of enticing ships too near them in order to make them out; and we caution them not only to have their lead overboard now and then, but also to have an anchor and cable ready for letting go in case of requiring it.

There is an interest attaching to the wreck of the *Duncan Dunbar* on account of the amount of suffering which it produced on our helpless female passengers who cannot be expected to endure the severe privations to which it subjected them so well as those who are inured to the vicissitudes of the sea. Their gratitude for their delivery has been warmly and affectingly expressed to the Commander of the *Oneida*, who did his duty nobly. And it is as much on this account as that of throwing out every possible information to our seamen that we reprint Lieutenant Parish's account of the islets. Since our introductory remarks to it were committed to paper the report to the Board of Trade has been made, from which we preserve the following extracts:—

Extract from Report to Board of Trade on Loss of the "Duncan Dunbar."

"The *Duncan Dunbar* left London on the 28th of August, Plymouth on the 2nd of September, and crossed the equator on the morning of the 6th of October, in long 30° 40' W.

"The master states 'He was aware he was far to the westward; but as ship masters are recommended at the present day, by high authorities, including Lieutenant Maury, when driven to the westward, to stand on and not to tack,' he determined to do so.

"He adds, 'He had no doubt of weathering Cape San Roque, and that he could more easily make his easting there than in the variables on the other side of the equator.'

"At noon, October the 7th, an observation gave the lat. 2° 56' S., long. 33° 10' W., as appears by the log, or as stated by the master, lat. 2° 59' S., and long. 33° 12' W. Las Rocas bearing on his chart S.S.W.½W. distant sixty-five miles; and that by the course they were then making from S.W.½S. to S.W.b.S. he expected to pass at least ten miles to the westward.

"And that without allowing for currents which at noon this day had set the ship to the westward at the rate of two miles per hour for the last twenty-four hours, and that from the strong W.N.W. current he had experienced for the last twenty-four hours he expected to pass twenty-six miles to the westward of Las Rocas.

"At 6h. p.m. he worked up the reckoning from noon, and found Las Rocas bearing S.½E. distant twenty miles, allowing for a knot and a half of current, and the usual (half point) leeway.

"At 7h. p.m., for greater caution, he sent the second officer and an A.B. seaman up to the foretopsail yard to look out, and at 8h. p.m. the first officer was ordered to relieve the second officer on the foretopsail yard, and he took charge of the deck himself. * * *

"It appears by the evidence of the second officer, that 'just before his time of relief, he remarked a curious appearance of the water on the port bow; it was such an appearance as might be shown on the water by a star, and appeared to be four or five miles off. And Andrews, the relief man, just then stepping on to the yard, instead of reporting this in the usual way from aloft, he *thought* he had time to go down and report it to the captain, and on his way he met the chief officer on the main deck, and said to him, 'Bear a hand aloft, the water looks curious.'

"That he went straight to the poop where the captain was and told him the water looked curious. He said, Does it? Where? and leaned over the rail on the port side. At that moment the chief mate sung out from aloft, 'Breakers! land, oh!' This was not more than three or four minutes from the time of his leaving the topsail yard. That he looked over the rail with the captain but could not see breakers.

"The first officer states that on reaching the topsail yard, which he did not more than a minute after meeting the second officer on the

main deck, he immediately saw the broken water at 100 yards from the port bow."

[A discrepancy is here found and accounted for by supposing different breakers to have been seen.]

"Immediately on hearing the alarm given of breakers ahead, the master (query the captain) ordered the helm to be put up, but the ship took the ground in the act of paying off. Ineffectual attempts were made to back her off when she first struck, and subsequently to float her off by throwing cargo overboard; but before the next flood she had filled with water and canted over, and eventually became a complete wreck, and nothing of value of the cargo with the exception of the specie was saved.

"This is a summary of the facts up to the ship taking the ground."
The report is signed—

JAMES TRAILL, *Stipendary Magistrate.*

R. B. BAKER, }
R. L. HUNTER, } *Nautical Assessors.*

We find it impossible to read these extracts without being struck first by the delay of the person named Andrews, who, instead of reporting at once his seeing a "curious appearance of the water" lost invaluable time because "he *thought* (how often that word has been fatally employed) he thought he had time to go down and report it to the captain" a proceeding which, in her then position, was fatal to the ship. Well, the helm was put up to avoid the shoal when the first mate sung out "breakers" from aloft, as Andrews should have done. But this was too late; the precious moments were gone, the ship obeyed her helm, but her fate was sealed. She did so only to go to her grave, and to entail on the unfortunate lady passengers all the miseries which they had to endure on those wretched banks called the *Rocas*, besides the loss of all their outfits, the time and all the attendant expenses.

But it may be asked what business the ship had in such a position and the answer, perhaps, would be "Oh, the captain knew where he was, and intended to go to leeward of the *Rocas* as he supposed 25 miles. If any one has the curiosity to see on what ground this is to be borne out let him lay down the position of the ship as given above on the chart of the South Atlantic on which the *Rocas* appears laid down in lat. $3^{\circ} 51' S.$, and $33^{\circ} 49' W.$, and having done this and drawn a line through those two positions (noon of 6th and 7th), the same line extended will reach the *Rocas* at precisely the distance given in the report, sixty-five miles.

Now had the *Duncan Dunbar* really intended to go West of the *Rocas* why did she not run for the sake of making sure (as she was only twenty miles from them by her calculation at 6h. p.m. on the 7th) another point westerly? We find nothing of this adduced, but "the course she had been then making from S.W. $\frac{1}{2}$ S. to S.W.b.S." persevered in. In fact, one would suppose she was destined for the

Rocas, so straight does she make for it and so true was her distance, exactly agreeing as it does with the chart. There were circumstances enough to throw doubt on the propriety of keeping on her course even in an uncertain current always westerly but somewhat fluctuating in strength direction, as might be expected of a Trade wind freshening or slackening occasionally. But more important still, the ship would be somewhere in the vicinity of that bugbear, as it is termed by Maury after daylight was gone, so that as to the danger of the Rocas should anything be wrong, either in the current and its direction, to get on that in the dark would be worse still. For a ship going eight or nine knots per hour to be brought up by a rock in daylight is bad enough, but at night it becomes ten times worse.

What precaution was taken by the *Duncan Dunbar*? To calculate her reckoning up to about sunset and to conclude that the Rocas were twenty miles ahead of her, and to send officers to the masthead to look for it who (excepting Andrews) could only see it in the darkness, when it was too late to avoid it. These were conditions, we say, that would have justified the *Duncan Dunbar* in relaxing from her course of the day and in keeping a point away for a few miles, when a *cast of the deep sea lead*, at intervals of half an hour or so, would have revealed something worth knowing. But, no; on she goes, right or wrong, and the result shows how lamentably she was mistaken.

But to help the *Duncan Dunbar* to her last moments in this world and her departure from it with decency, something in favour of her is said in the report about a southerly current at the Rocas, and this is given an easterly tendency to account for her being to the eastward of where she considered herself. No navigator is unacquainted with the voluminous work of Lieutenant Maury. He has done much service to navigation, perhaps, too much. Will he produce a current setting anything to the eastward at the Rocas? We should be glad to show it up if he does. We have not met in his book with anything else than always a westerly set, the same as Lieutenant Parish in the above extract. We believe that to the southward of the parallel of Cape San Roque a southerly current is formed by a portion of the equatorial current, that as it goes South branches eastward. But even Cape San Roque is seventy miles South of the Rocas, and from the formation of the South American continent as the equatorial current reaches it, Pernambuco itself appears a much more probable place for that division than Cape San Roque, as is really shown by an arrow in an Admiralty chart before us. And this is confirmed by our own bottle chart, which between the equator and the parallel of 10° S. shows even ten bottles which all take westerly courses.

In an account of the wreck of a vessel (the *E.D.*) of Liverpool, which appears in our volume for 1857, p. 94, it is stated that the Rocas "were strewed with much old timber, and we could distinguish five different vessels." This is a tolerable proof at one time of the dangerous nature of these rocks. How many more have since contributed their bones to them before those of the *Duncan Dunbar* were

added to them? And how many of these are to be attributed to the new route *to leeward*, so plausibly held up by Lieutenant Maury? Who, by the way, pre-supposes that ships know all about their position with respect to the Rocas which it may be supposed, as in the last case, all ships do not know. Such a leewardly route across the equator may be all very well for ships from the *Western* side of the Atlantic, but what says Horsburgh of old?

We read in Horsburgh that ships going South should cross the equator in from 18° to 23° W. Wrecks on the Rocas were few and far between in his day; and considering (as we have already observed) the fluctuating strength and direction of the current South of the equator (for it is there the mischief of a mistake lies,) by passing it thus well to the eastward the chances are very much lessened of vessels running headlong on the Rocas. We are not of those who are opposed to what are called by some "new fangled notions." But we pre-suppose with Lieutenant Maury that a ship not only knows where she is but also where dangers are that lie in her path; and if she does not, and takes no precautions against them, who is to be surprised that she is lost?

Are there not wrecks enough already on the Rocas? More than enough we think to obtain a lighthouse there from somebody. The light on Cape L'Agulhas did not require so many. At all events the *Duncan Dunbar* has contributed the loss of a very fine ship of 1,300 tons towards establishing that claim.

The report to which we have alluded most considerably (? sarcastically) holds out her loss as an example to navigators of the dangers of Maury's new route. With all due deference to the valuable labours of that officer, (sadly in want of digesting,) we endorse the caution with a recommendation to our seamen to stick by the doctrine of our old friend Horsburgh. Had the *Duncan Dunbar* done this or taken the precautions pointed out by Lieutenant Parish above now nine years ago, she might have been at Sydney instead of lying on the Rocas as another "warning to navigators."

ON THE NORMAL CIRCULATION AND WEIGHT OF THE ATMOSPHERE
IN THE NORTH AND SOUTH ATLANTIC OCEANS, FROM METEOROLOGICAL
REGISTRATION ON FIVE VOYAGES TO INDIA.—By
Captain Henry Toynbee.

Having lately made five voyages to India, leaving England on the 1st of July and returning early in April, I have observed the recurrence of certain facts relating to the weight and circulation of the air in the same part of the world at the same seasons of the year that interest the navigation.

These five voyages are made through the Atlantic Oceans from

50° N. to 40° S. lat. in the months of July and August; again returning home, from 34° S. lat. to 50° N. lat. during the months of February and March each year.

On the barometer ranges being lower to the eastward than to the westward of the Cape Verdes, the N.E. trades extending further south to the westward, and the S.W. monsoon (which at this season blows between the Trades) sets in further North, and blows stronger the nearer to Africa;—

We are told that the Great Sahara Desert being heated by the sun of the northern summer, causes an upward current of air, which draws in the air from the sea to restore equilibrium, just as the heated lands in India during the same season cause a S.W. monsoon in the Bay of Bengal, where a N.E. Trade would otherwise prevail. Our barometer diagrams show this by being lower near Africa, and gradually rising as the distance from the demand is increased. Again, in about 13° N. lat., where the S.W. monsoon commences, it is always much more from the west than it is farther southward, where the wind draws to the south, and very generally turns into the S.E. Trades without any intervening calm. In fact this heated part of Africa seems at this season to have the power of bringing the N.E. Trades to an end in about 17° N. lat. between the islands and the main, instead of 13° N. lat. outside, and of causing an indraft from the westward; it also gradually turns the S.E. Trade which blows near Africa into a S.W. wind, which we may suppose finds its way into the upper stratum of air over this heated land. Part of this S.W. monsoon seems to be formed of the damp cloudy air which exists in the doldrums, whilst the rest is evidently formed of clearer air—another evidence that it is part of the S.E. Trades.

It would be interesting to treat in a similar way a few logs of American ships leaving in July, and supplied with standard instruments, since they might show how far to the westward the barometer continues to range higher, and we have Maury's works to prove that the N.E. Trades do extend nearer to the equator in more western longitudes.

Having thus considered the curves of the outward passage from England with respect to their difference when further east or further west, we will view them in a north and south direction. It will be noticed that the lowest barometer occurs in the belt of doldrums, between the Trades; and by comparing the outward with the homeward route it appears, as is well known, that this belt is further north in July than in March. It is interesting, however, to see that the lowest barometer travels North or South with the belt of doldrums, showing that its cause must be sought for there, and not in centrifugal force, which might be supposed to fix it at the equator.

The sailor is naturally led to ask how it is that the barometer is lower here, a zone towards which two trade-winds are pouring in an immense body of air along the earth's surface, and in nearly opposite directions; for near the equator the Trades draw more North and South. We suppose there can be but one answer, viz. that here the

air rises, and forms those two upper currents which rush towards the poles, above and counter to the Trade-winds. We are told that the so-called African dust is really south American, and that much more rain falls in the Northern than in the Southern hemisphere, from which it is argued that the air which formed the S.E. Trades, having traversed more sea and picked up more moisture, rises in these doldrums, and travels to the N.E. above the N.E. Trades; and, *vice versa*, that the N.E. Trades travel to the S.E. above the S.E. Trades. Maury does not say how they pass each other, neither can we, but we have strong evidence of a current of air travelling above and in opposite direction to the Trade-winds, because we generally see the high clouds travelling in that direction.

We have, however, as it were, even seen the air ascending; for on the 15th of March, 1865, in $4^{\circ} 18' N.$ lat. and $20^{\circ} 33' W.$ long., when we had light fleecy clouds passing over us from the N.E., and we lay becalmed and roasting, longing for the Trades, my chief officer came and reported to me with a hopeful countenance that he had seen these light fleecy clouds travelling from the N.E. None but those who have experienced these calms can imagine how anxiously wind is looked for: to the N.E. of us there was an arch of clouds in the sky extending from the S.E. to the N.W. points of the horizon, with a calm and low barometer on the south side of it where we were, and (as we found afterwards) the N.E. Trade and a higher barometer on its North side; therefore the arch of clouds was probably formed by the condensation of moisture as the air rose, while we lay becalmed at the foot of the inclined plane of still air, up which the N.E. Trade was just commencing its ascent.

Travelling South across the equator, the barometer rises uniformly until we arrive at the Southern limit of the S.E. Trades; but in February the barometer ranged much lower than in August. The homeward route through the Atlantic differing much from the outward, does this difference of barometer arise from difference of seasons or difference of longitude? By comparing our routes near the equator, where they come very close to each other, and where the difference of height in the quicksilver is as great as in any other part, I am led to think that it depends upon the different seasons.

Whilst speaking of the homeward route, it is interesting to remark how on leaving the Cape of Good Hope we invariably had a valley, as it were, in the atmosphere, which quickly rose as we sailed to the N.W., even though we may have started in a South-easter, which is the high-barometer wind in those latitudes. I had noticed that after rounding Cape Agulhas with a South-easter and high barometer, the column fell suddenly after rounding the Cape of Good Hope, though the S.E. wind continued; and I suppose that the fall is caused by the ascending air as it comes in contact with the high land.

At both seasons of the year there is a heaping-up of the air at the polar end of each Trade, in the place where Maury tells us that two upper currents come to the surface of the earth. That which we have already alluded to, as coming from the equator towards the pole,

moving above the Trades, the clouds, proving its existence ; the other, Maury tells us, rises at the pole and travels as an upper current, above the strong westerly winds which prevail in high latitudes, towards the equator ; it can hardly be expected to have many clouds, he says, as its moisture must have been condensed by cold before rising at the pole, so that it becomes cold dry air.

We may ask what evidence can the sailor give for this theory to be deduced from his observation.

First, then, from these heaps of air he finds two surface winds blowing in opposite directions : the one moving towards the equator is cool, dry, and heavy, the other moving towards the pole is warm, damp, and light. He may well say, if two surface winds blow in opposite directions from this heap of air, there must be air brought to it by an upper current or currents to keep up the heaping ; but he may naturally ask, how do I know that an upper current comes from the pole ? First, because the prevailing surface winds in high latitudes blow towards the pole, which air must return ; and, secondly, because the Trade-winds are composed of cool dry air, which could not have come from the equator : here there is pretty good evidence that two upper currents come to the surface of the earth in these zones where the air is heaped up ; and again, that in dipping to the surface by some unknown means they cross each other, as Maury conjectured.

A few words now as to the manner in which the westerly winds which blow in high latitudes appear to draw the air from the heaps above mentioned. Here we will refer to our experience in 40° S. lat., where the normal circulation of the air is less interfered with by the land.

This parallel of latitude is subject to a series of gales which commence at North and end at N.W. or West. As the North wind sets in, the barometer falls, the air becomes warm, damp, and cloudy ; the wind gradually draws round to the N.W., after a time rain accompanies the wind, the barometer continues to fall, often fast, until in a heavy shower of rain the wind shifts to the West, when the barometer immediately rises, generally followed by a strong breeze from the westward, which decreases as the quicksilver rises, very often settling down into a calm. After a few hours the North wind sets in again, with a falling barometer, and a repetition of the whole series takes place.

One is naturally led to ask why the Trade wind draws air from this heap in a regular continuous stream, when these gales are fitful. May it not be because in the direction in which the Trade moves the meridians diverge and give plenty of room for the flow, whereas the westerly winds have converging meridians which seem to check the progress of the air. These fitful gales have always led me to think that the air was checked in its course. If further South, say in 50° S. lat., the wind continues steady from the West, then this zone of 40° seems to act as a reservoir for the westerly winds, being constantly refilled and steadily drawn off, only the stream into the reservoir is freer than that which runs out.

Now if we consider that these gales are composed of the warm damp air which comes to this heap from the equator above the S.E. Trades descending to the surface of the earth and travelling towards the pole, their Westing is accounted for by the change in the diameter of the circular route which the air has to describe in accompanying the earth in its revolution. These gales changing from North to N.W. and West have been treated as the N.E. quarters of Southern hemisphere cyclones; and we read in the *Nautical Magazine* of a ship having hove to to allow one of them to pass; but if, as we suppose, they form part of the normal circulation of the air, it seems useless to heave to to avoid them. The source of these gales being to the north of them is a sufficient reason why the wind does not change to South of West. The polar-wind gales which are experienced in these high latitudes, seem to derive their air from that upper current returning from the pole, part of which sometimes makes its downward way to the surface in high latitudes, especially in spring.

The gales of the Southern hemisphere, have their exact counterpart in the high latitudes of the Northern hemisphere, though I have not noticed them to be so constant, perhaps on account of there being much more land in the Northern hemisphere. Still all seamen know how, after getting North of the N.E. Trades, we look for the wind to come from South, S.W. and West, with warm air and rain.

The arguments deduced from my observations, seem to favour Maury's theory of the circulation of the air. Where he supposes two rising currents we have a low barometer, and where he supposes two descending currents we find a high barometer. But they are also suggestive. A series made with standard instruments for each month in the year might lead to most useful discoveries as to the normal circulation, and its disturbance by the effect of land.

My observations prove the uniform state of the atmosphere in those parts of the Atlantic between the Trades, at the same seasons of the year! especially in contrast with their sudden distortions on the polar side of the Trades, where their irregularities resemble the waves of the sea in the same latitudes, which may in fact be called the resultants of these distortions. Similar remarks outward and homeward, deduced from the same logs, between the latitudes of 40° South to 20° North, in the Indian Ocean and Bay of Bengal, would, I think, give interesting results, and I hope some day to work at them.

ANTI-FOULING COMPOSITIONS FOR SHIP'S BOTTOMS.

The protection of ships from the effects of fouling, in fact of keeping the part immersed in the sea free from accumulations of weed, would seem to be still a desideratum were we to form our opinion from cer-

tain reports by dockyard authorities from their experience of these matters, to which we have given place lately in these pages. But if we look about us for further experience on these matters, we find after all that the subject has been set at rest, as far as concerns the obtaining a surface that does resist the weed, but which, owing to that severe friction, as well as deteriorating effects to which it is always exposed, requires a periodical renewal extending only over a year. Whether the bottom of the ship be coated with copper or whether it be merely iron, the effect of the salt water on it, and especially in warm climates, is such as to demand this periodical examination and renewing. The copper, it is well known, becomes gradually eaten away, and the iron goes even faster, accumulating weed that is compared even with long grass. But to prevent this injurious condition of affairs several remedies have been proposed, and the last we have heard of is by Captain Coles, R.N., who contrives to obtain a facing of absolute stone over the bottom of a ship, and the mode in which this is effected is thus described in one of our daily journals:—

“One of the iron mortar boats in the Portsmouth reserve has been lying afloat in that harbour for some months, coated below her water-line with preservative and anti-fouling compositions, the preparations of various persons who have come forward to assist the Admiralty in devising a safe method of preserving and keeping clean the bottoms of iron ships. This mortar boat has now been brought down Portsmouth harbour and placed in dock, where the different compositions have been surveyed by the officials of the yard and reported upon.

“Some of them appear to have stood very well, as they generally do where no abrasion has taken place, but the anti-fouling pigments, with one exception, have utterly failed in preventing the growth of marine matter. The one instance alluded to is a preparation of mercury.

“There is one preservative composition, however, that from its novelty and the well known name and reputation of the officer who has suggested its use deserves more than the passing notice we have given to the others. This is nothing more than a coating of Portland cement, the use of which and the mode of its application were suggested to the Admiralty by Captain Cowper P. Coles, R.N. The patch of cement has been on the mortar boat's bottom upwards of twelve months, and has been subjected to considerable rough usage, yet it retains its hold on the iron, except round the edges of the frame, as firmly as ever, and remains as hard as a block of granite. Whether a coating of cement half an inch in thickness over a vessel's bottom could be applied without producing a damaging effect upon her speed, by increasing the displacement, is a distinct question, which must be judged by itself, our present purpose being to explain how Captain Coles proposes to preserve the bottoms of our iron ships by turning them into stone.

“Thin iron plates, the thickness of an ordinary sheet of copper, are taken, and a series of cuts punched in them, each cut forming three sides of a parallelogram about half an inch in length and two inches apart. These plates are next screwed on the ship's bottom by common iron screws tapped in three-eighths of an inch, the cuts in the plates being then bent outwards by a chisel to an angle of about forty-five degrees. Covered with these plates the bottom of the ship has reached its “hedge-hog back” form, and to enter on its final stone state the Roman cement has merely to be applied over all in the manner followed in buildings on shore.

“It is not attempted by Captain Coles to prevent fouling on the outer sur-

face of the cement; that he leaves to the care of the chymists. What he professes to do is to preserve the iron of the ship's bottom from oxidation and make the cement coating serve as an intermediary between the ship's bottom and any sheet-copper or anti-fouling mixtures that might be applied to keep the ship under the water-line free from marine adhesions of any kind that can affect the speed of the ship.

The advantages that may be quoted in favour of the cement are—1, rapidity of application when a ship's bottom has once been prepared; 2, the possibility of replastering when a ship's bottom has once been cemented over any portion damaged, by striking the ground, or by shot, without displacing any other portion; 3, the rapidity with which the cement sets after being applied; 4, the fact that the cement can be "hogged," scraped, or otherwise cleaned without fear of its being rubbed off; 5, its efficacy in protecting the armour-plates on wooden ships from galvanic action, by its being a perfect insulator between the iron plating of the ship and the copper or Muntz metal on her bottom; and 6, increased strength to the bottom of the ship and protection to it under certain conditions against the action of torpedoes. Against the advantages may be placed the disadvantages of increased displacement and weight of hull, and the possible effect this would produce upon the ship's speed.

This process may be looked on then as another answer in favour of the effects of fouling being absolutely prevented. The arguments of additional weight, durability, facility of renewal, and the question of economy will be only decided with the assistance of experience. But Captain Coles has contributed his views towards removing the difficulty as he has already done to the subject of using the heaviest cannon that can be employed in ships afloat by means of his turret principle turned to account elsewhere in the *Monitor* system.

Turning to other modes which have been in course of application, we find the subject has been frequently discussed at the meetings of the United Service Institution in London, where Admiral Sir Edward Belcher showed that the smoothest possible surface was no protection against fouling, and hence the proposal in the way of glass, alluded to in a former number of this journal, was considered as hopeless. But we find in a Brochure, published by Messrs. Peacock and Buchan, the following experiments were made a few years ago:—

"No sooner were the voyages of iron strainers extended to latitudes where the fouling of the bottom takes place so rapidly as to give rise to serious inconvenience, than the public ingenuity was stimulated to the device of measures calculated to remedy the evil. Most of the resulting projects, as usually happens in such cases, were failures; but to test the relative merits of the various compositions which had been suggested, the Peninsular and Oriental Steam Company directed one of its steamers, the *Ripon*, to be painted over in spots with the whole of the different compositions which had been suggested as a remedy, with a view of affording a fair comparison of their respective qualities. The following are the names of the parties who applied their compositions to the bottom of the *Ripon*, on the 27th of January, 1848:—Lees, Moresby, Clark, Ince and North, Hayes, Chanter or Weddersted, Grantham, and Parker. After running the usual time, the vessel was taken into dock and examined, when the following appearances were presented:—

"Lees' composition: as foul as red lead, hard when scraped, but there was corrosion in spots.

"Moresby's composition (aloes and red lead) could not be distinguished in any way, either in colour or cleanliness, from red lead.

"Clarke's composition : foul, rusty appearance outside, and corrosion penetrating into the plate.

"Ince and North's composition : barnacles and grass as on red lead, but no corrosion ; hard, and when scraped the composition appeared perfect.

"Hayes' composition : much corroded and foul.

"Clark's composition (No. 2) : very foul and corroded.

"Chanter or Weddersted (No. 2) : appearance clean, and without corrosion, excepting upon after part of plate ; but when struck with a hammer it scaled off, showing that corrosion had taken place beneath the paint.

"Grantham's composition (one part tallow, two resin, one sulphur) : foul and very much corroded.

"Parker's composition : more corrosion, barnacles and grass, than upon red lead.

"The result of this trial was, consequently, to show that none 'of the compositions which had been tried would preserve an iron vessel from fouling and corrosion."

The experiments of Captain Coles may be looked on as yet to be completed ; but the foregoing made by the Peninsular and Oriental Company may be considered as conclusive. But there is yet another well known competitor in the field whose success seems to have borne him triumphantly over all others, and this is the firm of Messrs. Peacock and Bunchan. Their composition (which it is only justice to them to say has met with general approval) is alluded to thus :—

"A very different result, however, has been subsequently obtained by the application of a kind of paint compounded by Mr. Peacock, of the Southampton Docks, which is found to be exceedingly effective in preventing both fouling and corrosion ; and it is the property of this paint, moreover, to preserve a slippery surface on the iron, like the back of a fish, whereby the velocity of the vessel through the water is said to be somewhat increased. Captain Engledue, the Peninsular and Oriental Company's Superintendent at Southampton, bears very favourable testimony to the efficacy of this paint. He says—"The first ship regularly coated with the composition was the *Ripon*, on the 3rd of June, 1849, when she was done on the starboard side with one coat, the original red lead not being scraped off. The opposite or port side, was done with the usual two coats of red lead only. She came out of dock on the 8th of June, and left for Alexandria on the 20th, returning to Southampton about the end of July, at which time Mr. Peacock's side was quite clean, whilst the opposite side was covered with long thick grass, which was scraped off four feet down from the water line, and recoated with red lead, the ship being heeled for the occasion. She left for Alexandria again on the 20th of August, and before leaving that port it was found necessary again to heel her, and scrape the port side as before. On her arrival at Southampton she was docked, on the 4th of October, when the port side was again found to be covered all over with long thick grass and bunches of barnacles, while the starboard side was quite free from grass, although there were a few small barnacles here and there upon it. This side had not been touched since the composition was laid on in June. The plates on both sides were found to be perfectly free from oxidation. Similar testimony as to its efficacy in the West Indies, and in many other situations where, without such a protection, fouling would rapidly take place, is given by competent observers ; and there appears no reason to doubt that ships may be preserved from fouling, even in the worst waters, by being coated with this composition."

But perhaps the most triumphant instance of the efficacy of Messrs. Peacock and Buchan's preparation may be pointed to in the case of the ship *Chili*.

From Captain John Ralph Engledue, Managing Director of the Thames Iron Works Ship Building, Engineering and Dry Dock Company, Orchard Yard, Blackwall.

"The Thames Iron Works, Ship Building, Engineering and Dry Dock Company, Orchard Yard, Blackwall, E.

September 26th, 1865.

Messrs. Peacock and Buchan.

Gentlemen,—I shall at all times have much pleasure in bearing testimony as to the value and superiority of your compositions for ships' bottoms.

I have used the No. 2 extensively for the last fifteen years, more particularly on the bottoms of the iron ships belonging to the Peninsular and Oriental Steam Navigation Company, and in every instance successfully. It is easily applied, economical, keeps the bottom clean, and also has the property of preserving the iron.

I visited, in dock, an iron sailing vessel called the *Chili*, a few weeks since, and found her bottom perfectly clean, which had been coated with your Composition for upwards of twelve months, having made a voyage to New Zealand and back, and in salt water the whole time.

I have also used your No. 1 Composition for the bottoms of wooden ships, coppered, and found it most advantageous, making the copper last double the usual time, and then only taken off to recaulk.

I have at various times tried preparations of copper on iron ships, and in every case found the iron and rivets damaged.

I am, gentlemen,

Yours faithfully,

(Signed)

J. R. ENGLEDUK."

Of a similar nature to this testimonial are a hundred others that we have seen showing the efficiency of the composition of Messrs. Peacock and Buchan, and how generally it is adopted no less by our own shipping, whether of individual firms and all our own steam ship companies, but also by those of foreign states. But here is one from a Spanish company:—

Sevilla, December 28th, 1864.

"Mr. Manuel Gomez, Gibraltar.

Dear Sir,—According to your request I forward the favour you asked me, with regard to Peacock and Buchan's paint for ships' bottoms.

I have always used it for all our steamers' bottoms, and have to state that I have found it superior to any other paint for that purpose, and can recommend it with confidence—particularly for the Mediterranean—as giving the best result of any I have tried.

Yours truly,

(Signed)

JAS. CORMANE,

Engineer to Casanovas and Co., Seville, Spain."

And even our own Lifeboat Institution have long used it for their Mosquito fleet.

There is a composition which has long competed with that of Messrs. Peacock and Buchan, the result of which was noticed in a recent number. But in concluding our remarks for the present, we shall add here a tabulated statement of the economical nature of Messrs. Peacock's in comparison with the only one that we have heard of being adopted besides theirs. The superiority to which we allude will be at once seen in the following :—

Comparative Statement of Expense for Docking and Coating an Iron Ship of from 3,453 tons up to 3,710 tons, with Professor Hay's and Peacock and Buchan's Compositions respectively :—

Cost of Docking and Coating with Professor Hay's Composition.

“ Docking and Undocking, say	£100	0	0
Protecting Varnish	74	15	0
Patent ‘ Anti-fouling ’ Oxide of Copper.....	107	18	0
Labour	55	18	4
	<hr/>		
	£388	11	4”

These figures are extracted from the *Journal of the Royal United Service Institution*, for July, 1865, p. 184.

Cost of Docking and Coating with Peacock and Buchan's Composition.

Docking and Undocking, say	£100	0	0
Red Lead	13	11	0
Two coats of ‘ Peacock and Buchan’s ’ No. 2 Composition	44	10	6
Labour	55	18	4
	<hr/>		
	£218	9	10
	888	11	4

Difference in favour of Peacock and Buchan

	£124	11	6
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Professor Hay's Composition requires to be renewed every } six months, or six times in three years	888	11	4
	<hr/>		
	6		

Cost in three years.....	£2081	8	0
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Peacock and Buchan's No. 2 will run for nine months before } requiring to be renewed. See reports on <i>Himalaya, versus</i> <i>Magara</i> —Introduction	213	19	10
	<hr/>		
	4		

Cost in three years	£856	19	4
	2031	8	0

Showing a saving in three years on one ship of.....	£1175	8	8
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With the foregoing statement we shall conclude our present remarks; but when next we hear of the want of the means of preventing the fouling of iron ships' bottoms, or of protecting any other metal from the injurious effects of the weed, we must set it down either to ignor-

ance or prejudice—the first from want of the knowledge of what has been effected by Messrs. Peacock and Buchan, and the last arising from a prejudice in favour of some new composition which turns out to be neither so effective or economical as theirs, but vastly more expensive.

OUR SAILORS' WANTS, AND HOW TO MEET THEM.

(Concluded from vol. xxxiv, page 663.)

Shipowners can set their face against sailing on a Sunday, and can inform their commanders and officers that their desire is that Sunday be respected, and Divine service performed, if possible, when at sea, and that no unnecessary work be done on that day. For instance, from 8h. a.m. to 8h. p.m. of Sunday, studding-sails need not be set. And experience shows that a ship where such a rule is carried out may do quite as well, if not better than her neighbours. In the hurry of a busy world we are too apt to forget that the greatest object of this life is not to make a quick voyage and bring in money, but to discipline human beings and prepare them for an eternity depending on their conduct in this world. All need, and ought to be allowed, time and encouragement to study their religion. This is assisted by the good custom of some owners who provide a library for their men, which is always made full use of when the books are well chosen.

It is a great help to the commander and officers of a ship when they know it to be the owner's wish that Divine service, religious study, and rational amusement and instruction be encouraged amongst their men.

Only two days ago we asked a fine youth, the son of a clergyman, if there was Divine service on board his ship. He answered, "No, unless we have troops; then their commanding officer reads it." This habitual neglect of our noble religion, which is, I am sorry to say, too common, ought not to be. These youths often start from home carefully impressed with the fact that they are immortal, and that eternity has to be prepared for: but they find by the example and practice (the most forcible powers of argument with young people) of those who have grown to manhood in the profession they are just taking up, that eternity is not to be considered by them, but that to push along and bring the voyage to a successful conclusion is the all in all of a sailor's life. The fact, however, is, that true religion helps more to bring about this wished-for success than any other power. Would that more would try it!

We have, then, asked the shipowners of England to give sailors—

1. More space to live in, and to take care that that space be drier and better ventilated.

2. In the next place, we have asked them to feed sailors as well as

soldiers and emigrants are fed; for as all spring from the same class, it is hard for those on whom so much of the success of the voyage depends to be worse fed and housed than their equals.

3. We have pointed out that the way in which sailors are provided for whilst at sea unfits them for providing for themselves when they come on shore; and the common custom has been to let them fall into the worst of hands, who waste their money, demoralise them, and make them less fit for their work when they go to sea again. And we have begged our shipowners, for the love of Christianity, or even of earthly interest, to lay their heads together to check these ruinous influences, by improving the style of payment on arrival in England, and by encouraging monthly notes. We have gone on to remark that marriage does not suddenly give wisdom to a sailor to manage the affairs of a household, and although he gets the name of husband, or *houseband*, (as Trench tells us,) he is obliged to leave his wife and family without their band, sometimes without half pay, (for some shipowners will not give it,) and they are thus thrown open to vice and misery. To meet this difficulty, we have asked our shipowners to build self-supporting Married Sailors' Homes. We want the hearts, heads, and a little of the time of these first rate men of business. The money will come from that immense sum which is sunk in gin-shops, crimps, and bad women, every penny of which goes towards the ruin of our nature and the degradation of our nation—spiritually, morally, intellectually, and physically, for it is a mistake to suppose that one class can suffer without injuring all around it.

4. We have gone on to ask shipowners to consider carefully, and advise government on the best style of pension fund and life insurance for sailors, being fully persuaded that if once a man saves money he will be steady to his employer and to his country. We have tried to show that, as sailors earn enough to support themselves and their families respectably, no difficulties should prevent those who have faith in the great work and help of Christ from using every endeavour to bring about so valuable a change. "If ye, being evil, know how to give good gifts unto your children, how much more shall your heavenly Father give his Holy Spirit to them that ask Him:" and this Holy Spirit can and will give wisdom to master *every* difficulty, to those who have humility enough to ask for it.

5. We have mentioned the good which shipowners would do by encouraging their commanders to respect Sunday, and by giving every facility to their crews for religious reading and rational instruction and amusement.

Trusting that these remarks will be taken with the good feeling with which they are offered, we will now turn to—

What commanders and officers can do for the improvement of sailors.

We think it would not be going too far to say that the labours of government and shipowners, if put together, are not equal to those which might be performed by commanders and officers of ships. They live amongst sailors, and have them for many months together apart

from the great temptations which beset them on shore. It is to them we must look for much of that heart-work which is superior to head-work. They having passed through the same temptations which are now destroying thousands, know by experience how much force these temptations gain from the peculiar life which sailors lead as compared with that of a working man on shore, who is so much more likely, being settled in one place, to marry, and enjoy the inestimable comforts of social life. It does not weaken our argument to say that numbers of the working classes on shore are drunken reckless beings, for if their more favourable circumstances do not keep them from going wrong, with what redoubled energy should we work for those at sea!

I am so entirely convinced, and so heartily believe, that the life and essence of all improvements, in any class of human beings is practical Christianity, that it must be the beginning, the middle, and the end of any suggestion of mine for helping our fellow creatures out of the miserable state into which numbers of them have fallen through the enslaving power of sin.

Christianity includes the whole man in its renovating power. It extracts the poison of sin from the heart's affections, from the intellectual powers, and from the animal tendencies. Our Saviour says, "Without me ye can do nothing;" and again, "Whatsoever ye shall ask the Father in my name, he will give it you." We do not, cannot doubt the willingness and power of our Saviour to lift into life and happiness the basest creature that ever breathed earth's air; only let that creature confess its own lost and ruined state, and ask God, through Christ, for the Holy Spirit of grace and truth to live in him and guide him.

Before a man can do good work in helping his fellows upwards, he must be travelling upwards himself, so that Christianity must be the study and practice of those commanders and officers who wish to help their crews to improve. They must understand something of man's position in this world; their hearts must be imbued with that most excellent gift of charity, so beautifully enlarged upon in St. Paul's Epistle to the Corinthians;—with this they will look upon the moral and religious difficulties of their men with deep sympathy, and they will pray for wisdom to know how best they can serve their God and their fellow creatures, thoroughly humbled as to any power or strength in themselves, and as thoroughly convinced of God's will, power, and desire to give them strength equal to their need.

Suppose, then, that our commanders and officers are feeling that product of true Christianity, a hearty desire to help all around them, what can they do for their men?

First on the list stands a good example and consistent life; those who profess more religion than their neighbours are carefully watched, and their slightest errors are caught at and used as arguments against religion. We must, indeed, continue instant in prayer for wisdom and power to know and do our duty to all around us. It seems to be more and more felt that before we can help people our hearts' sympathies must be drawn out towards them, we must feel for them, un-

derstand their difficulties, and have the power of showing them that we love and take a deep interest in them, though at the same time we do and must hate and fight against their vicious habits:—

“ If they who hate the trespass most,
Yet, when all other love is lost,
Love the poor sinner, marvel not;
Christ’s mark outwears the rankest blot.”

We must first gain influence over our men, by considering their personal comforts; by giving them good time for their meals, and not interfering with their regularity more than is absolutely necessary; by giving them time, and, if possible, rain-water to wash their clothes, also time to clean out their fore-castle; by taking good care of the sick, allowing them medical comforts, and rain-water for washing themselves, remembering how truly indispensable cleanliness is to the sick; by ordering their wet clothes up immediately after rain; and doing all in our power to encourage them to personal cleanliness. Here I would again refer to the invaluable facts collected by Dr. Chevers as to fevers, &c., entering a foul ship, gaining tenfold deadliness on board, spreading from her, and even clinging to her through a long series of years, and would echo his words:—

“ Some old sailor may say, ‘What signifies a little bilge water? Where should we be now if we had fallen sick every time the devil boarded us in the shape of a stink-pot?’ To this I reply, ‘What signifies the flame of a lucifer in a cottage thatch?’ ‘A little yeast leavens the whole lump.’ Most of us, by the mercy of Providence, live through a great many stench; but whenever we fall ill in the midst of a putrid atmosphere, the foul air greatly aggravates our disease, particularly if it be fever or any bowel complaint, and very often prevents recovery, poisoning the sick man with every breath he draws,—in fact, it, as it were, ties nature’s hands, and prevents her best efforts to relieve him. Regard a foul ship as a floating coffin. It was, long ago, truly said by Mr. Grainger, upon large knowledge of the subject, that ‘If proper measures are adopted, there is no reason why a single case of typhus fever should occur on shipboard.’ Let all who have to perform the very simple duty of keeping ships clean make a note of this.’

Then, with regard to food, it often happens that a ship which is in the habit of carrying troops or emigrants has preserved potatoes, preserved fresh meat, pickles, &c., left from these peoples’ stores, some of which might be given to the crew to great advantage, especially if we see that they are well cooked. Few, if any, shipowners would object to this; while a good mess of preserved potatoes once or twice a week, and two or three fresh meat days during a passage, add much to the comfort and health of a crew.

The question of whether the men should have grog allowed them has some difficulties. We think it would indeed be hard upon them to reduce their present limited scale of diet. If grog is not given, a

good substitute in the shape of coffee or cocoa and sugar should be allowed. When a choice is given, about half our crew prefer half a pound of coffee, and the same of sugar, weekly, in the place of grog. Considering how very important sobriety is to sailors, their commanders and officers will do much good by asking the owners to allow them to give a good substitute for grog to those who prefer it. The experience of the labouring temperance men on shore seems to prove that, when stimulants are given up, better food is required; and no doubt we may do much towards persuading shipowners to give a better dietary scale to sailors. It seems a generally allowed fact that, if once a man or woman has acquired the habit of drinking to excess, total abstinence is the only remedy; and we shall do much for the temporal and eternal happiness of any drunkard if we can persuade him to abstain entirely, and take to a better diet instead.

Some owners give a library to each ship,—in such cases the books should be taken care of, and issued on Sundays. We ought to give our crews as much of their Sundays as possible, and should not make sail unnecessarily on that day. It is a good rule not to set studding-sails between 8h. a.m. and 8h. p.m. of Sunday, and to have Divine service morning and evening. It is advisable to enter in the ship's articles that each man is to come clean to Divine service on Sundays, and as much as possible to keep himself so throughout the day. Their attendance at evening service may well be left optional, and it will be found that several will come. Where there are many who cannot read, a class of listeners might be found for an interesting book, or perhaps the Bible, during an hour on Sundays. The amount of work which we can do for the religious benefit of our men will vary with circumstances, but our readiness and watching for opportunities will depend upon the state of our own hearts; so that our success will probably increase as we ourselves advance in Christianity.

Neither must we forget the intellectual faculties, and that one great prevention of vice is to enable men to find amusement in reading, writing, arithmetic, navigation, or any study. We have found a morning school, from 10h. to 11h. a.m., very useful; any of the watch below, who like to come clean, are permitted to attend, and learn reading, writing, arithmetic, navigation, or anything they wish. Some have asked for languages, and made good progress. "Where there is a will there is always a way," and teachers can generally be found. The pupils are generally the best behaved part of the crew; and when they do misbehave are shy of coming to school again, showing that it is a check upon them. Three or four of our former fore-castle scholars are officers of ships. In port this school has been carried on in the evening, from 7h. to 8h. p.m., of every other day; and on alternate evenings we have had an hour's reading from some amusing book with a good moral.

And here I may remark, that the gain of such instruction is far from being all on one side, "it blesseth him that gives and him that takes;" for if a man wishes to master a subject himself, he will gain wonderfully by trying to teach what he knows of it to others. That crying

sin of our Scandinavian nations, *drunkenness*, prevails largely amongst captains of ships, as we may see by the returns to the Board of Trade of the causes of wrecks; and is no doubt caused, in many cases, by the reaction and loss of energy consequent on rising to the command of a ship. From a position which taxes the bodily strength constantly, and sometimes to a high degree, he finds himself able to do exactly as he likes, and for many weeks (depending on the nature of the voyage) he has very little to do. The change is a trying one, and many good officers are injured by it. How important, then, to have some interesting and useful occupation for filling up spare time. Our own profession supplies us with an ever increasing field for study in astronomy, meteorology, magnetism, natural history, mechanics, &c.; and, no doubt, many commanders would have been prevented from getting into the above named bad habit if they had spent their spare time in striving to improve themselves and their men. Here we will give a letter which proves that some shipowners are anxious to get men who will carry out the kind of work we propose.

May 6th, 1865.

Dear Sir,—I observe your remarks in the *Shipping and Mercantile Gazette* two days ago as to the state of our seamen, and the necessity for more energetic measures being adopted for their welfare and improvement. I am aware this is not a new subject for you to be interested in, and hope, by perseverance, your exertions will be successful to some extent.

However, I think you lay the blame *entirely* on the shipowner; here you are in error. I own ten thousand tons of shipping, all engaged in the India trade, and make it a constant effort to provide better accommodation and food for the crew, and also seek to promote their moral and religious improvement, by giving a large library, &c., and other means. The greatest obstacle I encounter is the thorough indifference of the masters to carry out my instructions, and take any interest in those who are so immediately under their care for so long a time.

I wish you would add this item to your list of deficiencies, that masters may realize their responsibility to a greater extent, and make some commensurate efforts to fulfil it.—With best regards, I am, yours truly,

A SHIPOWNER.

Captain Henry Toynbee.

We fear there is too much truth in this letter.

We hope that Government will very soon establish a Life Insurance and Pension Fund, both for officers and sailors. Commanders and officers can do much to make this popular amongst their men by understanding the principles themselves, and explaining them. We also hope that shipowners will very soon establish well-conducted Married Sailors' Homes, where they, with their wives and families, may get all the advantages which their money will purchase, and where their children may have good opportunities of being trained as

sailors or household servants. We say again, at the risk of repetition, that sailors and their wives earn money enough to pay for extra advantages ; all that is required is that its course should be diverted from the support of gin shops and houses of infamy, which are the moral pests of our seaports, and employed in these legitimate ways.

After thirty years spent in the most active of lives, I know full well what immense difficulties oppose such changes : but the invincible power of Christianity can overcome every obstacle which opposes the upward rise of human nature ; and if a corps of humble, faithful Christians would prayerfully strive to carry out these plans, they would succeed. The question resolves into this, Are sailors to be given up as hopelessly below the noble influences of Christianity, or are they to be helped to rise in spite of the fearful impediments which beset them ? and are the means we propose those best suited to help them ? If not, what else can be done ? for the subject is very far from being exhausted. It would be well if commanders and officers would consider this subject carefully, for they might be able to suggest some other practicable ways for improving the position of our seamen, which none can say is not in need of improvement.

(To be continued.)

REWARDS TO LIFEBOATS' CREWS.

With "revolving years" the seasons of storm again and again occur, and each brings more and more prominently into view the "Lifeboat and its Work," whilst each seems to demand for that work a greater and greater amount of public sympathy and support. All honour to those brave fellows who imperil their lives in its performance ! All honour to those whose philanthropy and liberality provide them with the means and the encouragement that enable them to perform it !

That the bold spirits of our hardy sea coast men will always be forthcoming to undertake their share of this noble work, and that the warm blood of Englishmen and women will ever stir them up to aid and encourage them to do so, are now settled points. As, however, the proudest and strongest barque may drift into danger if not controlled and navigated with consummate skill, so the best and bravest of human undertakings may fail to successfully effect its aim unless guided with judgment and care, as well as directed with energy and zeal.

We therefore in these few remarks on the treatment of our lifeboat men propose to indicate two dangers which "lie ahead," or rather, to use a perhaps more correct metaphor, which bound, on either side, the Channel through which our noble barque must steer.

The one of these dangers is palpable enough ; but the other, lying beneath the surface, like the sunken rock, calls all the more for the watchful pilot's care. Each danger is of a double kind ; but, emerging from our metaphor, we will at once plainly state the actual dangers to which we allude. They have sole reference to the degrees of pecuniary remuneration and of credit or blame that are bestowed on the crews of lifeboats in return for the important services which, frequently at imminent risk to their own lives, they perform in the interest of their fellow-creatures.

Now, at first thought, it may not unnaturally be felt that the danger can only here lie on one side, and that it would be impossible to over-estimate or over-remunerate such services, for what higher act can a man perform than to risk his life to save that of another ? It is, however, precisely because we estimate at their highest value the splendid, the heroic services of many of our lifeboats' crews, that we desire to eliminate from them, so far as possible, the dross of mercenary motive, and to hold them up, so far as possible, as the pure, unalloyed gold of disinterestedness and self-devotion, that we include amongst the dangers to be avoided in the bestowal of an indiscriminate or exaggerated amount of reward either of a pecuniary or laudatory nature. The subject, however, requires delicate handling.

We will first consider the question of pecuniary payments. Before the National Lifeboat Institution seriously undertook the work of surrounding the coasts of our country with lifeboats, and superintending their future management, it was a common complaint amongst the sea coast boatmen that they met with no encouragement from other classes to induce them to risk their lives in endeavouring to save those of shipwrecked sailors. A uniform scale of payment was, however, then established by the Institution for its lifeboats' crews, viz., ten shillings per man for each occasion of proceeding to the aid of a wrecked crew in the daytime, and £1 each by night; double payments being given for extraordinary services.

Without wishing these payments to be looked on as equivalents to serious risk of life, it was considered, having due regard to the safe qualities of the lifeboats, that they were sufficient to act as an encouragement, without being enough to establish a mercenary motive in lieu of the more honourable and more noble one of a desire to save the life of a fellow-creature.

As a general rule, therefore, we consider that this scale of payment should be adhered to, and that it is only in cases of a very extraordinary character that it should be departed from. We will illustrate our view by a case. Some years ago a very creditable and daring service was performed by the crew of a lifeboat on the English coast in rescuing the crew of an American ship. A gentleman who happened to be on a visit to the place at the time wrote an enthusiastic letter to a leading journal, appealing to the public to subscribe for the reward of the lifeboat's crew, which appeal was so liberally responded to that a considerable amount was contributed. The matter was then taken up by the then American consul, who, thinking that his own

countrymen were bound, in honour, to contribute as much as the English public, appealed to them in the same cause, and the result was that the two appeals produced a very large sum, amounting to several hundred pounds, which was divided amongst the few men who manned the boat.

Now, we should be sorry to grudge any poor hard-working man such a "windfall;" but that there are important interests involved in the issue. In the first place, as will be evident to most persons, so magnificent a reward would in similar cases, as it was in this one, be dependent on the accident of there being an enthusiastic or able letter-writer on the spot ready to plead in behalf of the lifeboat's crew, and therefore other lifeboat men at other places might at about the same time, as was the case in this instance, perform equally meritorious services, yet receive only the ordinary scale of payment as above described. The result might therefore be to cause discontent, or at least disappointment and a sense of neglect, amongst the less fortunate boatmen elsewhere, whilst it would probably also lead themselves to depreciate the payments made them on other occasions. But the worst result of all would probably in most cases be to increase the mercenary feeling.

On the other hand, however, there are cases of so extraordinary a character, that some special mark of approbation or admiration is called for in addition to that awarded by the institution on its usual scale, and in such cases a local contribution may be appropriately and beneficially resorted to. We will also illustrate this view with a case.

At daylight on the morning of the 20th of October, 1865, the wind blowing strong from N.N.E., with a heavy ground sea on, a vessel was observed on shore on the western spit of Hayle Bar, from three to four miles distant from St. Ives. The sea was making a clean breach over her, and the crew were supposed to be in the rigging. The St. Ives lifeboat of the Royal National Lifeboat Institution was at once launched. In crossing the bar, with the drogue or drag-bag in tow, which carried her safely over two heavy surfs, a tremendous sea broke over the stern, and the drogue-rope breaking, from the immense strain on it, she flew before the crest of the surf in almost a perpendicular position, and running her bow under water, broached to and upset; she soon however righted, and the crew again all managed to get on board. Two oars, grapnel, anchor, and rope were lost, and two crutches broken. Rowing four oars only, the crew contrived to get her under the lee of the vessel, which was the French brig *Providence*, of Granville, 98 tons register, Capt. Challit, from Cardiff for Dieppe, with 138 tons of coal. With a heavy sea and strong under-current, however, they found it impossible to get alongside. Nearly an hour passed in signalling to the French crew to send a rope by means of a spar or raft; when this at last was done, the coxswain signalled to haul on board the life-buoy, intending to take the men off through the water, but he could not make himself understood. Two of the crew now endeavoured to reach the lifeboat by means of the

connecting rope; one was being dragged on board, and the other was within four or five yards, when a fearful sea broke on the broadside of the boat, and upset her a second time. She righted instantly, but the poor fellow who was on the rope lost his hold, and was never seen again. The other held fast to the boat, and the crew once more got into her without accident. The communication with the vessel had not been broken, and the lifeboat again hauled up as near as possible to her. The captain and remaining two men then took to their boat, when the second wave capsized them. Through a fearful sea the lifeboat was hastily hauled ahead, and the three men were most fortunately picked up. The crew of the lifeboat landed at Hayle thoroughly exhausted. A more heroic service has perhaps never been rendered by any boat.

In admiration of it a local contribution was raised to present a suitable acknowledgement of their bravery and endurance to the lifeboats' crew, in addition to the awards of the Lifeboat Institution. The amount collected exceeded £100, giving to each man between £12 and £13, and we feel sure none will be found to say that it was not well deserved.

Apart, however, from the pecuniary question is the ideal one—that of praise or blame—and unless to the utmost sordid minds, in whose eyes gold is the embodiment of all good, or other worthless characters, who is there amongst us that is uninfluenced by, or indifferent to the good opinion of his fellow-men? But to be really valued praise must not be exaggerated or it will run risk of being despised, even by those who are the recipients of it, yet who know it to be more than they are entitled to. Excessive praise and admiration, therefore, and the honorary awards of medals and votes of thanks should also be reserved for cases of a striking and exceptional character, when great courage, determination, or endurance has been displayed.

On the other hand, however, great mischief may be done and much pain inflicted by hastily attaching blame to men who may have exerted themselves to the utmost of their power to save the lives of their fellow-creatures, yet who have been unsuccessful. For what can be more galling, or more likely to induce a man to decline to engage in so hazardous a work as the going to a wreck through a raging surf, than the upbraiding him with cowardice or inefficiency when he may know himself to have done all that it was possible to do. When his services are again craved by the drowning men in the stranded or foundering ship, but the weeping wife and little ones are perhaps likewise appealing to him to remain at home—if he be then reminded of the bitterness of spirit with which he heard his last brave but unsuccessful efforts depreciated, and himself reviled by those who had safely watched them from the shore, can we, or ought we, to feel surprised if that reflection should throw its weight into the scale, and he should leave to others the task which his manhood would otherwise have prompted him to perform?

Yet such injudicious and unfeeling conduct is not uncommon on the

part of, it may be, well-meaning persons, but who never having had their foot in a lifeboat in a heavy surf, and being quite ignorant of the terrific force with which it will often break over and overwhelm both boat and crew, expect impossibilities, and make themselves judges in the case.

We beg to remind all such, that under some circumstances of wind and sea combined, human strength is not sufficient to force any boat ahead, whilst never has a boat been built, and probably never will be, that would not also be liable, under some circumstances, to be upset.

We will relate one case amongst others, which during the present winter have given rise to animadversion on lifeboats' crews, because their gallant efforts have not been crowned with success, and which case will not only serve to illustrate our subject, but will, we trust, induce any who may read it to withhold a hasty judgment in any such case, should they ever have the pain to witness one.

At about 7½ h. p.m. on the 23rd of November, 1865, a vessel was seen in distress at the north side of Blackpool. The lifeboat of the National Lifeboat Institution was conveyed with all expedition opposite the scene of danger, and in a few minutes was launched into a raging sea. So strong a surf had the crew to encounter that the lifeboat filled three times in succession, and was with difficulty forced ahead against the wind and waves. After hard pulling she was got within 150 yards of the perishing ship, but at this point so complete a gale set in for half an hour that three races of sea broke over the men, and smashed four of their oars. The lifeboat was then backed into shallow water, and rowed up to windward, in order to make a second attempt; but they could not get so near as before. Driven back again, they by-and-by made a third noble effort, and now saw a light held forth from the imperilled ship, but found it utterly impossible to make advance against the heavy head sea that was rolling, and which for two hours and a half had been filling their boat as they boldly fought with the waves. The crew being then exhausted, and seeing all their efforts to be futile, came ashore. No sooner had they done so than the vessel capsized and broke to pieces; one side of her was washed up, and the cries of struggling sailors were distinctly heard. The lifeboat was again put to sea in the hope of picking up men that might be on rafts, or otherwise trying to escape, but nothing living could be found. It was now nearly midnight, and the lifeboat had become locked between two cliffs on the beach, from which position she was unable to get away without damage until six o'clock on the following morning. All the crew of the ill-fated ship were lost. The vessel was the brig *Favourite*, of Liverpool. She was loaded with palm-oil and seeds, and had a crew of ten men. The wreck was about a mile from the shore. In expression of approval of their exertions, *although unsuccessful*, the institution paid the crew of the lifeboat, thirteen in number, a double reward, or £2 each.

While inserting the above, which we have received from the active

secretary of the Lifeboat Society, in the Adelphi, we are impressed with difficulty as to the special award which he has stated, and we would propose that it be met in a manner that would not only recognize a special reward in the case by which it has been produced, but might also be extended to the registered boats' crews of all the lifeboat stations. When the reward subscribed for the special services of a lifeboat amounts to more than would give her crew £10, or £15, or wise—among the crews of all the lifeboats of the institution. Some £20 each, let them be so paid out of it, and let the residue (after repairing the boat if injured in performing the service) go to a fund, to be divided periodically—say monthly, quarterly, or other—such arrangement appears to us would be, not only fair, but considerate and reasonable. For these services men should be paid well, but not too well.—ED. N. M.

PIRACY IN THE CHINA SEAS.

Piracy, it appears, has lately been prevalent in the China Seas. In our last October number we inserted a notice forwarded to us from Singapore of the narrow escape of the ship *Formby*, of Liverpool, and so daring are these pests of the ocean become that no ships are safe in those waters unless they can take care of themselves.

The *Overland Mail* of the 14th of October says:—"Repeated acts of piracy along the coast, between this port and Shanghai, have given rise to a very strong feeling among the shipping and mercantile community in China that, unless something very decided is at once effected by the combined action of the respective governments, they will be obliged in self-defence to arm every ship and lorcha engaged in the coasting trade, and effect for themselves what the authorities will not do for them. The revelations made at the trial of the five Portuguese lately executed here, at the examinations of certain Chinese charged before the magistrates with the crime of piracy, and, above all, in the deposition made by the master of the lorcha *Rockaway* with reference to his capture and detention by certain pirates, leave no room to doubt that the piratical fleets are becoming daily more numerous, bolder, and more perfectly organized and directed. They have the best information; have well-manned boats, armed in a very efficient manner; safe harbours of refuge; excellent markets for their plunder; and such an amount of voluntary or enforced co-operation from the petty mandarins, soldiers, and coast population that they are everywhere certain of assistance, and, if needs be, of support.

"We have further in these accounts the most convincing proofs of the utter powerlessness of the Chinese squadrons to effect anything against the pirate fleets, even when spurred into motion by the remonstrances of our consuls, or shamed into a momentary display of energy

and courage by the presence and co-operation of our gunboats. So numerous, so powerful, and so well-informed, too, have the pirates become, that the gunboats, so generally successful, have begun to return baffled and without success. The attention of the Chinese government must sooner or later be called to this matter. A combined note from the representatives of foreign powers ought to be laid before the cabinet at Peking, pointing out the nature of the evil, the urgency in its removal, the powerlessness of the Chinese government in its present state to provide effectually for the police of its own waters, and submitting for instant approval a plan for the formation of an allied squadron, to be furnished by England, France, America, and Prussia, on behalf of Germany, for the suppression of piracy and the protection of foreign trade. The expenses of this squadron ought in all justice to fall on the Chinese government, and they must be made to pay them. They can well afford to do so now, for the indemnity payments will shortly, if they have not already ceased, no longer form a drain on the revenue of the country, and the fifths hitherto payable from the Customs' receipts will go naturally to provide for the safety of the trade from which they are derived. The question here mooted is the most important of those that now demand solution."

By further accounts the important fact appears that others besides Chinese are engaged in these piratical proceedings. When these lawless ruffians wear masks to conceal their faces in their attacks, it becomes questionable who they really are. The following reiteration of their proceedings bears out this statement:—

Piracy still continues in the Chinese Seas. The latest case reported occurred on board a Hamburgh brig named *J. H. Bocklemann*. It appears that the marauders had mistaken this vessel for one which a short time previously had left Amoy with a valuable cargo of sundries and a large amount of specie. On boarding the vessel they threatened to murder the crew; and as their numbers seemed to favour the probability of the threat being carried out, the officers and crew were obliged to submit. The rascals then, after rifling the brig of everything of value they could lay hands on, pointing pistols at the heads of the captain and officers, compelled them to name where any valuables were secreted on board; and the only resource left to them was to submit.

The *Overland China Mail* in an article headed "Let every Vessel be armed," says—"Again we must resume our remarks about piracy, and we commence by reporting a case which plainly shows that traders on this coast have more than Chinese intellect to contend against. The Prussian barque *Fokkein*, on her passage from Chefoo to this port, was chased, fired at, and nearly captured by a pirate that came out of Tai-chau Bay; and it was only owing to the fortunate circumstance of another vessel heaving in sight that she escaped. The captain of the *Fokkein* confidently asserts that most of the crew wore masks, but seeing their hands he noticed them to be white, and consequently assumed them (very rationally) to be Europeans. Only

a short time ago the captain of the *J. H. Bocklemann* declared that the man who held the pistol to his head when his vessel was captured was a European, though his features were disguised by an external covering.

Now, when we find our own countrymen amalgamating with Chinese in such unlawful transactions as these, we think that it naturally, as public journalists, becomes us to vent a few words—perhaps of advice—on the subject. If it is really a fact that there are foreign buccaneers on the coast, the matter should be seriously looked into by government, and owners of vessels compelled to arm their ships in an efficient manner. Frequently two small things called guns, and which, if discharged, would probably cause more devastation in-board than to the assailants, with half a dozen long rotten, rusty muskets, and perhaps three “cavalier” pistols, are all the arms which a vessel is supplied with. What little chance then even a large ship can have against the heavily-armed junk, over-manned and containing European supervisors. There is no dearth of munitions of war in this colony; every shipchandler’s yard presents an array of guns sufficient to equip a frigate, and good guns most of them are too—guns which, though they may be bought cheap, would, if placed to the number of six or eight on board each vessel, tend very considerably to suppress piracy on the coast. If the government are lax in sending out gun-boats to capture these human sea sharks, merchantmen should look after their own interests, and guard both life and property themselves.”

Such proceedings as the foregoing will no doubt receive the attention of our own government. But it will be no less necessary for our merchant ships to be prepared by being well armed, for whatever force may be sent to extirpate them it will be quite evident that there must be many parts of even the China Sea, to say nothing of the China coasts where our cruisers cannot be at the same time they are in others. Rapid sailing to outrun these pirate junks and a sufficient force to keep them at a respectful distance from a ship lying becalmed are qualifications now actually required by traders to Chinese waters, and should have the immediate attention of merchants and ship owners.

We had just concluded the foregoing when the following and its appendix came to hand to show what is going on in the China Seas:—

The *Opossum* gunboat, tender to the *Princess Charlotte*, returned to Hong Kong on the 19th of October, after performing a brilliant service, without a single casualty. The pirates in the immediate vicinity of Hong Kong having lately become very daring, and the senior officer in charge of that division having information that a number were collected in Mirs Bay, from which they could readily pounce upon vessels proceeding to the northern ports of China, sent Lieutenant St. John in the *Opossum*, in search of them. When the gunboat reached Mirs Bay three junks were sighted, the crews of which were throwing guns overboard, and hurrying on shore, and on being boarded they proved to be two pirate junks, and a captured fishing junk; under hatches in the latter were found eight men and four

women. Lieutenant St. John burnt the two pirate junks, and handed over the other to the original owners, from whom he obtained valuable intelligence, acting upon which he steamed for Toon-i-ang Island, just before the break of day. On the N.E. side of that island there is a well-concealed bay, with a narrow and shallow entrance, where junks can only get in at high water. Here Lieutenant St. John observed over the land three large junks anchored, and he immediately decided on attacking them in the rear, which he successfully accomplished by landing a force, and under shelter of a small wood crossing a strip of land, came upon them unawares, the gunboat in the meanwhile steaming in for the entrance. There were upwards of 100 men on board the junks who, as soon as the gunboat hove in sight commenced casting loose their guns and making other preparations for resistance; but the cheers of the little band of blue jackets created such a panic amongst them that there was a general rush overboard, and a hasty retreat to the hills.

Lieutenant St. John was soon in possession of the junks, but could only secure four prisoners, who are lodged in the gaol at Hong Kong. The pirates recovering from their surprise rallied, and twenty being encouraged and led on by a chief or head man advanced to between forty and fifty yards, brandishing their swords and muskets; but it is presumed their powder had become wet and useless when they jumped overboard. A volley from the gallant little band, covered by the *Opossum's* guns, soon dispersed them. The junks were moored with their broadsides to the entrance of the inlet, and carried from six to eight 24 and 28 pounders each, which being brought on one side of the vessels made a formidable battery, sufficient to beat off or sink any gunboat that attempted the passage. Lieutenant St. John burnt the junks and re-embarked his men without a casualty, which reflects much credit on him, as he executed a dashing act, for which he is highly eulogised by the Hong Kong press.

On board one of these junks he found a little wounded Chinese boy, eight or nine years of age. He had been taken prisoner by these pirates about six days previously, when he received a spear wound, three inches deep, in the shoulder. The poor child could only give a confused account of the attack on the junk he was in. His shipmates were either killed or dispersed, and he found himself alone a slave amongst the pirate crew. He is now under the kind treatment of the surgeon of the *Princess Charlotte*, and most valuable evidence has he given at the police court, which will doubtless convict the prisoners brought in by the *Opossum*.

We understand that within the last twelve months Lieutenant St. John has captured 35 pirate junks, mounting in the aggregate 140 guns, taken 56 pirates, and liberated 150 captives.

Want of space compels us to reserve the appendix to our next.

Nautical Notices.

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

POSITION OF ANTIPODES ISLAND.

8, *Woburn Place, Russell Square, W.C.*,
7th December, 1865.

Sir,—I enclose you an extract from the log of the ship lately under my command from Melbourne to London. Although the position here given is probably inaccurate to a few miles, yet it will be enough to show that the island is laid down much too far to the eastward by Raper, an authority I have heretofore been accustomed to rely upon implicitly.

I have, &c.,

W. PARFITT.

To the Editor of the Nautical Magazine.

I may add, the chronometers mentioned were subsequently proved to be correct within four miles at Cape Horn, four miles at Trinidad, and six miles in the Channel.

[The longitude of Antipodes Islands, as noticed in our last July number (p. 385), given by Captain Burdwood, so amply confirms that of Lieutenant O. H. Wilson, $178^{\circ} 42' E.$, made twice over, as to settle it finally,—the extract of the *Holmsdale's* log, sent us by Captain Parfitt, having reference to the maritime positions of Raper. These being made some years since will no doubt be liable to correction, as indeed more or less all such large collections really are. We thank Captain Parfitt for his communication.—ED.]

24th August, 1865.—*Extract from log of ship "Holmsdale."*—6h. a.m. Passed Penantipode Island, bearing N.N.W. by compass, distant about sixteen miles,—position much in error. By two chronometers, rated at Melbourne on 12th instant, and verified by observations off the Snares on 21st instant, make the longitude of the island about $178^{\circ} 55' E.$ By meridian altitude this day make its latitude about $49^{\circ} 45' S.$

The island is high, apparently from 600 to 900 feet, four or five miles long, and rugged, with a small islet on the N.E. side, and a remarkable high and large pillar-shaped rock off the West end.

Lost sight of the island from deck at nine o'clock, having run since six o'clock, thirty miles, E. $\frac{1}{2}$ N.

THE CHATHAM ISLANDS, *South Pacific Ocean.*—By Captain C. M. Hope, H.M.S. "*Brisk.*"

Making the Land.—On making the Great Chatham Island from westward, a high rugged hill, Mount Maunganui, appears to form its

North extreme; but on approaching it Patterson Point is seen, long and low, with dangerous reefs a mile or more off it. Mount Dieffenbach is to the right of Maunganui, a sharp pointed pyramidal hill said to be the highest, although Maunganui seems higher, and other lower peaks resemble Dieffenbach.

Cuba Channel.—H.M.S. *Brisk* approached Alison Point steering East, passing through Cuba Channel into Petre Bay. The coast from Alison Point to Some Point appears rock-bound, and not to be approached within a mile. The breakers on West reef may be seen eight or ten miles off from the mast head, and on approaching it patches of it are visible above water. The reef appears to extend further to the N.W. from the dry part than the chart shows. There is however a channel of three miles wide between the reef and Some Point, wherein no bottom could be obtained with 10 fathoms, going half speed, but no indication of other dangers appeared.

Petre Bay.—Good anchorage is found in Wangaroa or Port Hutt, and Port Waitangi. The other bays on the North side are open to South and S.W. winds. Passing along the southern shore of Petre Bay nothing was seen of the Heaphy Shoal, and with a heavy swell no break was seen along this shore, except on the Jenny Reef, and this of less extent than the chart shows.

Port Wangaroa affords shelter from all winds, but is very small. West and S.W. winds raise a heavy sea at the entrance, so that vessels should anchor as far in as possible. The entrance may be easily recognised by the sketch on the chart. With the hummock on Mount Iwa-Kawa open to the eastward of Maunganui, as shown in the sketch, the harbour is open, and the white sandy beach at its head visible. But the sandy beaches at the heads of the two bays eastward of Wangaroa must not be mistaken for it.

The breakers on each side of the entrance to Wangaroa show its dangers, and the necessity of keeping mid-channel on a N.W.b.W. course. A patch of floating kelp stretches partly across the entrance from Napper Reef, but the *Brisk* passed through it. Avoid the reef off Gordon Point by the outer edge of the kelp, which marks the deep water.

The *Brisk* anchored inside the line from Gordon to Evans Points in 5 fathoms, coarse sand and shells, with the middle of the little cove behind Evans Point N.E. A large vessel should moor if intending to stay, as there is scarcely room at single anchor to swing unless the anchor lies exactly in the centre of the harbour. In the N.W. corner of it is excellent water, but no fire-wood or supplies of any kind are found here, the country for miles round being bleak open moorland intersected by small lakes and swamps. The only habitations are two Maori huts on the West side at Howard Bay.

Port Waitangi is the principal of the Chatham Islands: here the magistrate resides, and other Europeans. Fresh meat, poultry, and vegetables are abundant and very cheap; also very fine potatoes, for which these islands are celebrated, and which are largely exported to New Zealand and Australia. The land in the neighbourhood is

excellent; bearing good wheat and all kinds of English fruits and vegetables in perfection. The lakes abound with wild ducks; curlew, plover, and pigeons, as also wild pigs, are plentiful.

The anchorage at Port Waitangi is not safe for large vessels in westerly gales. Vessels drawing 12 or 13 feet only may ride out S.W. gales close in with Hanson Point bearing S.W. or S.W. b.W.; they will then have some shelter from the heavy sea, but a rolling swell will try their cables.

Yet with a gale from N.W. this is a dangerous anchorage. The *Brisk* experienced a heavy S.W. gale while at anchor here in May 1865, with Clatchie Point W.S.W. in 6 fathoms, fine black sand. The gale lasted forty-eight hours; one cable parted, and the vessel was in a very critical position in a high breaking sea, and a strong offset from the shore keeping her at times broadside to wind and sea. An American whaler lying farther in also parted a cable, and the crew left her, expecting wreck, but she rode it out safely, as did also a schooner under Hanson Point. A shoal of 5 fathoms is said to be $1\frac{1}{2}$ mile northward of the anchorage, position uncertain, but known to the natives, who fish on it.

The Coast from Durham Point to Eveque Point is high, bold, and apparently clear of danger. Eveque Point proceeds from a remarkable hill with a cleft rock on the top like a bishop's mitre, from whence the name.

Pitt Strait.—The *Brisk* passed about $1\frac{1}{2}$ mile to the northward of the Sentry Reef, correctly placed, but smaller than in the chart. It is entirely covered, the sea breaking violently on it.

A rock is reported at a short distance from the shore, 2 or 3 miles west of Cape Fournier, out of the ordinary track of vessels passing through Pitt Strait; nothing was seen of it. The residents state that, excepting this rock and Sentry Reef, Pitt Strait is entirely free from danger.

Pitt Island and its surrounding islets and rocks are most incorrect on the chart; excepting Sentry Reef, the entire coast South of Capes Eveque and Fournier is erroneous. The north end of Pitt Island is five miles too far north, and its shores are altogether different.

The north end of the island forms a bay about $1\frac{1}{2}$ mile wide and half a mile deep, with good anchorage in southerly winds. From the middle of this bay Eveque Point bears $W.\frac{1}{2}N.$, and Cape Fournier $N.W.b.N.$, and assuming that these two capes are correctly laid down on the chart, its centre would be in lat. $44^{\circ} 13' S.$, long. $176^{\circ} 29' W.$ This latitude is nearly correct, by observations taken at noon. Mr. Hunt, an Englishman, who has resided for twenty-five years on the island, lives here: he farms a great portion of the island, and gains his livelihood by supplying whalers with fresh provisions of all sorts. He also acts as pilot, and chiefly from him Captain Hope derived information that did not come under his own notice.

On the east side of Pitt Island is an anchorage much frequented by whalers, where vessels are well sheltered from westerly gales; on the

west side there is good anchorage with northerly and easterly winds in a bay behind a very high and precipitous island called by the residents the Castle. This island, which is probably that named the Fort in the chart, is nearly in the position of the Outposts as there laid down; this latter being a very remarkable sharp-pointed serrated rock, more to the S.W.; and the extreme rock of this group, called the Sail Rock from its resemblance to a boat with a gigantic lug sail, is considerably to the S.W. of its position on the chart. This group of rocks is very remarkable; the Castle is flat-topped with precipitous sides, 300 or 400 feet high. The *Brisk* was too far off to judge of the positions of the rocks off the south end of the island.

Supplies.—Abundance of fresh meat, potatoes, and vegetables may be had at Pitt Island; also poultry, milk, and butter. The island is thickly wooded; the soil very fertile; and, as at the great island, all kinds of European fruits, &c., grow and thrive. Wheat is also cultivated, but not in quantity sufficient for exportation.

Bertier Rock.—From the north end of Pitt Island the *Brisk* steered N.N.E., thus passing four or five miles northward of Bertier Rock, a flat-topped islet about 150 feet high. This rock is laid down six miles too far to the N.W. of its proper position, and being on the parallel of 44° S., has obtained the local name of the Forty-fours.

Round Island is placed about four miles too far to the N.W.

Three Rocks.—The existence of the three rocks laid down in lat. $44^{\circ} 20'$ S., long. $176^{\circ} 3'$ W., is very doubtful; and the

Star Quay Reef is said to occupy a different position from that on the chart.

The bearings are magnetic. Variation 15° E. in 1865.

FRIENDLY ISLANDS, *Disney and Culebras Reefs.*—By Commander G. H. Parkin, H.M.S. "*Falcon*."

Disney Reef.—At 12h. 10m. p.m., 15th of July, 1865, steaming to the N.W. in lat. $19^{\circ} 18'$ S., long. $174^{\circ} 7'$ W., the peak of Lette Island bearing N.W., had soundings in $13\frac{1}{2}$ fathoms, sand and coral, on a supposed portion of the Disney Reef. As shoaler water was seen north, east, and west, the engines were reversed, and ship's head brought S.E., on which course we soon passed off the southern edge of the bank. We then steered South one mile, S.W. three miles, West three miles, and then N.W. b.N., with the peak of Lette on the port bow. When the ship's head was S.E., broken water was seen from the masthead bearing E.S.E.

Culebras Reef.—The *Falcon* at 10h. a.m., July 18th, passing westward of the Hapai Group, Honga Island bearing S. $\frac{1}{2}$ E., Hapai Island S. $\frac{1}{2}$ E., and the sugar-loaf top of Kao Island, seen over the eastern part of Tofoa, N.b.E. $\frac{1}{2}$ E., breakers were seen S.S.W. $\frac{1}{2}$ W. four to five miles, on the supposed Culebras Reef. The position of the breakers was ascertained to be lat. $20^{\circ} 19'$ S., long. $175^{\circ} 24'$ W. The top of

Kao Island in line with the centre of Tofoa would lead on, or very close to, the reef.

Caution.—As the Friendly Islands are not yet surveyed, and the positions of many of the dangers off them are doubtful, the mariner must be specially careful when approaching them. The reef sounded on by the *Falcon* in lat. $19^{\circ} 18' S.$, long. $174^{\circ} 7' W.$, is the same as that seen by Captain Virgin, of the Swedish ship *Eugenie*, in 1852, about twenty-five miles N.N.E. $\frac{3}{4}$ E. from the N.E. point of Haano: it may also be that seen by Captain Disney in 1841, and marked on the Admiralty chart about twenty miles farther to the westward. It is also probable that the other reef (supposed to be the Culebras) seen by the *Falcon* is identical with the reef marked on the chart in lat. $20^{\circ} 9' S.$, long. $175^{\circ} 8' W.$, or about seventeen miles farther to the eastward; when in their vicinity a good masthead look-out and a careful lead should be adopted.

H.M.S. *Havannah* in 1849, "steering S.S.E. for Tongatabu, passed through a clear channel about midway between the bank called the Culebras and Namuka Island, by keeping Kao Island open eastward of Tofoa Island."

The bearings are magnetic. Variation $10^{\circ} E.$ in 1865.

PORTO GRANDE, *Cape de Verde Islands.*

H.M.S. *Orontes* on getting under way, 12th October, 1865, at Porto Grande, in the Island of St. Vincent, Cape de Verde Islands, grounded in 21 feet water to the eastward of the buoy, where the chart shows $4\frac{1}{2}$ fathoms.

Vessels of large draught should therefore anchor outside or westward of the buoy.

THE REORGANIZATION OF THE FRENCH FLEET.

The *Avenir National* contains the following article upon the reorganization of the French fleet:

It is easier to plan retrenchments than to carry them out. It will be remembered that when the budget of the War Department recently underwent a slight reduction, the minister of marine, yielding to the pressure of circumstances, ordered the disarmament of a certain number of the vessels of our iron-clad fleet. But a despatch mentions as a positive fact the reorganization of that fleet upon a new basis. This altogether recent decision could not fail to be received with favour in our three grand naval ports—Toulon, Brest, and Cherbourg. The inhabitants of those ports, and the authorities who superintend the

construction or the arrangements of our squadrons, have the greatest interest in the country disarming as little as possible. It is not surprising, therefore, that the Marquis de Chasseloup-Laubat, towards whom the grievances of the engineers and the officers of our navy finally converge, have set their heart upon the adoption of a very different system than that of disarmament.

We are told that that system will permit the retrenchments recognised as indispensable to be made without in any way compromising the maritime power of our country. If this were so, we should not be the last to applaud; but we must be permitted to doubt it, if the details published on this subject by the papers of the south are to be believed. There are henceforth to be four squadrons instead of two—the iron-clad squadron of the Channel, assembled at Cherbourg; the iron-clad Atlantic squadron, at Brest; the iron-clad Mediterranean squadron, at Toulon; and a squadron of reserve, consisting of four iron-plated frigates. This, doubtless, does not form a larger naval force; but such a division cannot fail to increase expenses, as we are about to show.

The Channel squadron, consisting of the two-decked spur ship of the line *Magenta* and the frigates *Heroine* and *Flandre*, will leave Cherbourg next March for Toulon, in order to take part, as has been mentioned, in the trial of a system of naval tactics contained in a new treatise by Vice-Admiral Bouet-Willauvez. Those experiments are all very well, but to effect them a large quantity of coal must be burnt. If the ships which are about to be sent from the Channel to the Mediterranean had been simply kept in the roadstead, much more considerable savings would certainly have been effected.

The Mediterranean squadron, comprising the two-decked spur vessel *Solferino* with the frigates *Provence* and *Savoie*, are to receive a new sort of artillery, consisting of 50-pounder guns mounted on carriages of an improved kind, which step opens a new chapter of expenditure.

As to the Atlantic squadron, it is not yet formed, and there is thus no means of effecting savings while “pushing forward with the greatest activity” the fitting out of the frigates *Magnanime*, *Valeureuse*, and *Gauloise*. Let there be no mistake as to the sense of our observations. We do not mean to say that it was wrong to stop the disarming of the French iron-cased fleet. The fact is evident that France has allowed herself to be outstripped by England in matters of artillery. The French types of armour-plating pierced through with port-holes have been an error for which the country has paid dearly, and which will still cost much more money. But the harm has been done, and must be repaired.

The creation of the reserve squadron is the consequence of another error which has affected the nautical qualities of several of the French frigates, and which was made apparent by the last voyage of the experimental fleet. The forming of a fourth squadron was therefore found necessary; it is composed of the *Couronne*, *Normandie*, *Gloire*, and *Invincible*, which vessels will now be rarely sent

to the open sea, but will serve for the trial of heavy artillery near the coasts.

And since we are speaking of the late cruise of the squadron of evolutions, let us give some details which are but little known to the public. During the night of the 13th November last, the Mediterranean fleet was on its way from Ajaccio to Toulon with a strong breeze from the N.E. The wind was favourable, but the sea of the Gulf of Genoa is trying, and the result was a serious damage to some of the iron-cased frigates. While the steam dispatch boat *Caton*, built on the old system, and the admiral's ship *Solferino*, (plated in the middle only, and vulnerable at the two extremities,) bore themselves with ease, the *Couronne*, *Gloire*, *Provence*, and *Invincible* suffered greatly. The first of those armour-plated frigates lost all her outside boats, one of which, striking the deck of the vessel, killed one man and wounded several others. The *Gloire* gave rise to great uneasiness from the quantities of water she shipped in rolling. The *Provence* lost two boats, and the *Invincible*, being in serious danger, was obliged to abandon her post and run to the coast for shelter. Similar incidents had already occurred last summer. In fine, two years ago, on the occasion of the experiments made in September and October, 1863, by the French iron-cased ships, the nautical defects of those frigates had been ascertained.

A committee, presided over by Vice-Admiral Penaud, followed with much attention the comparative experiments executed at that period between the coast of France and the Canary Isles. That body did not dissimulate the defects observed during the voyage; but the country was not allowed to read the report of its servants. An article, carefully written, and published shortly after in one of the principal reviews, instead of enlightening the public, only showed things in a light favourable to the error which had been committed. Thus, instead of being able at the present moment to enter on that course of saving so often spoken of, a necessity exists of studying the subject further and incurring fresh expenses. In fact the absolute want of control has allowed the Ministry of Marine to go astray by following almost exclusively the views of M. Dupuy-de-Lome. The admitted talent of that engineer is not here brought into question. But to confide to the same person the triple task of constructor, artillery officer, and seaman was an error. In the first of those duties alone M. Dupuy-de-Lome is free from reproach. The movement which has been decided on in the French naval force was consequently required, but no one can be persuaded that the result will be an economy.—*Daily News*.

COLLISION BETWEEN THE DOVER MAIL STEAMER "SAMPHIRE" AND
AN AMERICAN BARQUE OFF DOVER.

A terrible catastrophe occurred in the Channel on 6th of December. The *Samphire*, one of the fine fleet of mail steamers of the London, Chatham, and Dover Railway Company, on the arrival of the continental express train at Dover from London, embarked about seventy passengers and the mails, and at eleven o'clock at night steamed away for Calais. The sea was comparatively calm, but the atmosphere was thick and heavy. When the steamer had performed four and a half miles of her passage, twelve minutes having elapsed from the time she left Dover, an American barque struck her violently on her port bow, and cut her well nigh asunder.

The barque turned out to be the *Fanny Buck*, of Boston, bound from Rotterdam to Cardiff. She is of about 500 tons burthen, and was in ballast. The violence of the collision was so great that the total wreck of the steamer appeared inevitable, and a rush was made to the small boats, the barque not having stopped to save the lives on board the steamer; and it was at this juncture that a most melancholy and fatal accident ensued.

A Russian count, in his eager effort to get into the small boat fell overboard. As he rose to the surface a life line was thrown to him for his rescue. He grasped it, but through exhaustion, as he wore a large heavy cloak, he lost his hold and sank. On rising again, Captain Bennett, the commander of the mail steamer, jumped overboard and secured a line round the body of the drowning count; but unhappily, just as he was being raised into the boat, the line slipped from his waist, and the count sank to rise no more.

When the shock of the collision was felt, the passengers rushed from the cabins to the deck. The fore cabins immediately filled with water, but, by the peculiar construction of the steamer, the fore part can be rendered incommunicable with the compartments aft of the engines, otherwise the steamer would have immediately sunk. As it was, however, the vessel was able to keep afloat, though her bulkheads had filled and her bow was under water.

On communication being made with the shore, the Belgian mail boat, just arrived at Dover from Ostend, was sent out, and it towed the *Samphire* to the mouth of Dover Harbour by seven o'clock in the morning, the passengers having been landed in small boats.

The cause of the collision will of course be a matter for official investigation.

The steamer had her lights burning brilliantly, and those on board deny that the barque exhibited any lights. On the other hand, two of the crew of the barque, who scrambled on board the steamer, and were landed and received at the Dover Sailors' Home, declare that the barque had her proper lights up, and that they saw the steamer crossing her bows.

From the effects produced upon both vessels, the violence of the collision must have been terrific. The steamer, which is iron-plated, was stove in right down to the keel, every timber in her appearing to have been loosened. The barque, which was obliged to enter Dover harbour in the morning, was also much damaged. The iron plates of the steamer pierced to a depth of nearly a foot into the barque's timbers at the bow, her stem and cut-water were broken away, and she was stove in in several places, both below and above water. But the worst part of the affair is that it was presumed to have been attended with other fatal consequences. On counting up the party two ladies were missed, and as the last which was seen of them was, that they were seated in the fore-cabin shortly before the collision, it was supposed that they must have been drowned in that compartment of the vessel. This could not, however, be ascertained until the tide was down and the water ejected from the cabin. But in the meantime the mails were removed from the vessel, and preparations made for their despatch to their destination.

As the water left the vessel two ladies were seen floating about in the fore-cabin, and a gentleman sitting upon the bunk. The bodies were then removed to the dead house by the police. The ladies were identified, and the three bodies await a coroner's enquiry.

The names of those who lost their lives are Monsieur Laynelet, traveller in the house of Messrs Bockering, Fieres, and Co., No. 37, Boulevard des Capucines, Paris; one foreign gentleman, unknown, both lost overboard at the time of the collision. Found drowned in the cabin: Miss Baines, of Yalding, Kent, and her companion, Miss Kœnig; and Monsieur Duclercq, of Gravelines.—*Daily News*.

[We understand that an investigation of this collision is about to be made by the Board of Trade.]

CHARTS AND BOOKS PUBLISHED BY THE HYDROGRAPHIC OFFICE, ADMIRALTY, in December, 1865.—Sold by the Agent, J. D. Potter, 31, Poultry, and 11, King Street, Tower Hill, London.

- 2,390.—Hebrides Islands, Roag Lochs, Captain Otter, R.N., 1865, (3s.)
 49.—Ireland, North Coast, Skerries Roadstead and Port Rush, with a view, Staff-Commander Hoskyn, R.N., 1864, (1s. 6d.)
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Tide Tables for 1866, Staff-Commander Burdwood, R.N., (1s. 6d.)

EDWARD DUNSTERVILLE, *Commander, R.N.*

Admiralty, Hydrographic Office, 19th December, 1865

TO CORRESPONDENTS.

We have received *Captain Hayden's* letter on the Solar Eclipse of April last at the Chincha Islands.

Also the table of *Captain Loftus* of the ship *Moneka*.

The *Dædalus* Rock off Cape St. Vincent. Our "reader" is informed that nothing appears to have been done by any one as to settling whether there is such a rock or not! And that the latest information of it is in our volume for 1859, p. 61,—in fact, the authority of its existence. But this, it appears, is doubted on authority even better than that on which it is reported. If our correspondent can throw any light on its existence, we hope he will do so.

Thanks for the Magnetic Extract.

We are compelled by want of space to reserve the continuation of the article on the Trinity House, as well as that on the Voyage of the *Narvaez*, until our next.

The Proprietor of the *Straits Times* has our best thanks for his contribution.

ERRATA.

Our readers are requested to make the following corrections in the December number, which by an oversight were allowed to pass.

Page 637, foot note, for vol. 1865, p. 65, read vol. 1864, p. 557.

- " 673, line 14, for *the read* the.
- " 673, last line, for *plot read* blot.
- " 674, first line, put fullpoint at end of line.
- " 674, line 7, for *continues read* continue.
- " 674, " 28, for *lifeboat read* lifeboat.
- " 675, " 11, for *from the read* from the.
- " 675, " 7, from bottom, for *Ba mouth read* Barmouth.
- " 676, " 4, for *grated read* granted.
- " 676, " 8, insert off after washed.
- " 676, " 16, insert Good before Hope.
- " 677, " 2, for *which read* which.
- " 678, " 16, for *there read* their.
- " 680, " 2, for *impossible read* possible.
- " 680, " 10, for *toassure read* to assure.
- " 680, " 11, for *andready read* and ready.

THE
NAUTICAL MAGAZINE

AND

Naval Chronicle.

FEBRUARY, 1866.

A FOREIGNER'S ACCOUNT OF US:—*The Trinity House.*

(Continued from Vol. xxxiv., page 635.)

On the Seven Stones the crew of the vessel say that they have only seen two wrecks:—from the first they saved one man, and in the second all the passengers excepting the wife of a missionary. But the saving of life is no part of their duty, and such acts of heroism are rather admired than encouraged. Their duty is to look to their light and no more, and on this account no one is allowed to leave his post on any account whatever. One of the crew in 1854, having been informed of the death of his wife, left the vessel to go to London, where he intended to bury her. He was reprimanded, but in consideration of the nature of his misdemeanour he was not dismissed. The light of the Seven Stones is in the most exposed and dangerous position of all the lightvessels on the coast. Her captain however, considers that she rides at her station in the seas which run there, easier than other vessels of her class from her long chains than if they were short. In fact, this vessel is always ready for a storm; and when she is struck by a sea in her upper works, although the deck is often flooded, one would suppose that she had fired her guns. The life of the crew is much the same in all the lightvessels. On Sunday, at sunrise, the lantern is lowered down on deck, and is prepared for its work at night. At eight all the crew should be up and their hammocks stowed, and then to breakfast. After this the

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crew wash and dress in their Trinity House uniform, of which they are proud, for they wear the Trinity House button. At half past ten they assemble in the cabin for church. At sunset the lantern is lighted and hoisted, and they pass the evening in reading their bible. Apart from these services, the days of the week are occupied much in the same manner, but Wednesdays and Fridays are great field-days on board for cleaning and setting the vessel in order, and they are days of inspection. To survey and examine the light apparatus, to arrange the watches on deck, to note seven times in the twenty-four hours the direction of the wind and state of the weather, to see that the vessels chains are in good condition, form the general routine of duty. These occupations leave but little leisure time, which may be filled up with reading. There is always a library in these vessels, and the only one who can complain in such condition is he who can neither read nor write.

Such, however, is the fact with some men who are employed in this service; but such is the force of example, and such the effect of *emulsi* in these cases that by the attention of the captain or mate this deficiency of education is made up. There is one, for instance, who has acquired his knowledge thus, that has become one of the best officers of the service. The crew, besides, follow every kind of work requiring patience and attention—some even follow the business of joiners and shoemakers. But occasionally there is a state of the sea that breaks through these conditions. As a moth is attracted by the candle the lantern of the lightvessel attracts clouds of birds at night, many of which fall on the deck dead, or so much exhausted that they cannot escape capture by the crew. It is said that a thousand of these birds were taken one night by the crew of the lightvessel, and they had a gigantic sea-pie from them.

The men receive a salary of fifty-five shillings a month, which is raised with length of servitude. The captain has £80 a year, and they are generally all married men with families. On shore they have their little houses with gardens, in which they raise vegetables, with their flowers. At sea they are filled with the idea of being useful in their station, and the feeling sustains the determination with which they endure the solitude which their duty requires. In fact their destiny is not unlike that of the vessel in which they serve during the greater part of the year, chained down to their station with the temptations of sea and the breeze. There are forty-seven lightvessels on the coasts of Great Britain and Ireland, thirty-four of which belong to the Trinity House, four to the Ballast Board of Dublin, and the rest to the Board of Northern Lighthouses. The cost of one of these lightvessels is from £3,600 to £6,200. The expence of each vessel, including the oil, salaries of crew, equipment, and provision, costs the Trinity House an annual expence of £103. The vessels perform strictly a great service; they are marvellously adapted to the nature of the coasts they are upon; a circumstance which sufficiently explains their English origin, but their powers of lighting cannot extend far from them. Hence where nature has per-

mitted, the lighthouse is preferable, constructed as it is of solid masonry, and this mode of lighting will next claim our attention.

The visitor, without leaving Scilly may visit two lighthouses, St. Agnes and that of the Bishops Rock, the latter being placed on the site of a building that was washed away in 1850, during a severe storm. The present tower stands on a lonely rock far out at sea, about five miles from St. Agnes, and so difficult of access that to get into it the light-keepers always use a life belt. The person landing is obliged to jump from the vessel on a step which is like polished marble, and should his foot slip and he has not hold of the angles of the rock, he must fall into the sea. This lighthouse, which is one of the most admirable of stone structures and most exposed to the fury of the sea, was assailed by a huge wave in a storm in 1860, which tore away a bell suspended from it at 100 feet above the surface of the sea. It appears that neither fresh meat nor vegetables will keep the men who live in it from the scurvy. At St Mary's, in Scilly, they reside in neat houses built for them by the Trinity House.

The buildings destined for lighthouses are found on the English coast in three different conditions. The first we will consider as mounted on piles at the mouths of rivers, or at the estuaries of rivers washed by the tide, and may thus be compared to the heron on its long legs. The light and its keeper's lodging are thus perched up in the air high enough for the wave to wash and spend its fury beneath them without ever reaching them. The safety of such whimsical structures gives a denial to the proverb which says that a house built on sand cannot resist the power of the wind and waves. The second order of lighthouses are towers of masonry which stand with more dignity on the sea coast. These are generally surrounded by white cottages and a wall, and overlook the sea. A good specimen of these is on Beachy Head; the Lizard also, which latter consists of two towers carrying lanterns and connected by a covered gallery so constructed that the lightkeeper can pass from one to the other without being exposed to the weather. The apartments attached to the building and the houses of the light-keepers form a cluster around it, which, with their white-washed sides form a conspicuous mass from a distance. In fact, this third order of lighthouses are granite giants surrounded sometimes on all sides by the sea. They may be well compared to the Prometheus, they make part of the rock on which they stand, so firmly are they imbedded in it, and in their elevated position, with the light at their summit, the utmost fury of the sea cannot extinguish it. The construction of this order of lighthouse is evidently the perfection of architecture applied with the science of the engineer, and the Eddystone is the most ancient of the order. It was from Plymouth that I paid my visit there, in a vessel managed by two men, and we started at eight in the morning as the visit was expected to occupy the whole day. The breakwater attracted our attention as we passed into the Sound; a stupendous work commenced in 1812, on which the sea breaks with all its fury, and the summit of which is paved with rocks. Since the commencement it is

said that 4,000,000 tons of rock have been thrown into the sea to form it, having a lighthouse at its western entrance, erected in 1843. It has evidently been the grand object in forming the entrance of this building to exclude the sea, which, although it is eighteen feet above it, makes a very rude inroad to it sometimes. A circular stone staircase leads to the oil room, occupying the first floor; next above this is the store room, in which provisions, &c. are kept; the next is the bed room of the light-keepers, the dwelling room, and the watch room. The whole is surmounted by the light room with its glass roof, the midst of which is occupied by the lantern, eight feet high, and resting on bronze pillars. This light is provided with four reflectors formed by 180 mirrors calculated to be visible at the distance of eight miles; the sea face of the light being red, and towards land being of the natural colour. The lighthouse has a bell attached to it, which is kept ringing in foggy weather, and such is the experience of the pilots, that, according to the sound of this bell they know very well where they are. The best fog signal, however, is the steam whistle, which is used on Partridge Island, at St. John's, in the Bay of Fundy, but not yet introduced into English lighthouses. But there is even another preferable to the bell. At the South Stack lighthouse, at Holyhead, that stands on a rocky islet connected with the mainland by a bridge, they avail themselves of birds, which are quite tame and attached to the place. This lighthouse has also a bell and a cannon. But the natural cry of the birds is considered so much superior to these that the cannon is placed at some distance from the rock lest its noise should frighten the birds, and in the islet the young gulls ran about with rabbits, each in harmless enjoyment of their liberty.

The persons who have charge of the light at the breakwater consist of three men who pass two months in the lighthouse and one on shore, and the two on duty divide the night between them. They receive their provisions from Plymouth, consisting of salt meat and vegetables. In case of one being taken ill a signal is employed and if by night, a light is shown. Their wives and families may visit them while on duty, but must go on shore at sunset.

In winter the sea frequently runs over the summit of the building. The two lighthouses of the breakwater, and the Eddystone, are in a manner connected with each, one being on the road to the other, and by its light guiding a vessel to the other. But one is a dwarf, and the other a giant, and to this latter we speedily made sail after casting off our painter from the ring of the breakwater.

The history of the Eddystone lighthouse has been given to the world in a simple narrative by its builder, Smeaton. But an earlier than he, by name Henry Winstanley, in 1696, had constructed a building on this rock, in the midst of the sea, that had some resemblance to a Chinese pagoda. An engraver of the time, by direction of the architect, formed a picture of it, in which he was represented as fishing out of one of the windows with a line. But this lighthouse, full of devices and inscriptions, and with an open gallery

at its summit, with angles, projections, and fantastic ornaments, had in fact but one fault, and that was want of strength. Henry Winstanley seems to have been an eccentric character. After having completed a building which wanted nothing but stability, he waited for the storm with a feeling of defiance. In a moment of undue bravado he is said to have exclaimed, "Blow ye winds, raise your waves thou sea, let loose the rage of the elements, and come and try my work." The tempest came as he desired, but it was to be fatal to the architect and his work." On the 26th of November Winstanley had gone to the lighthouse to make some repair to it when, during a fearful storm in the night the whole edifice, with those who were in it, was torn from its foundation, and swept into the sea by the waves, leaving behind it only a chain which was embedded in the rock. Still a light was actually necessary on the Eddystone, and this was proved by the loss of the *Winchelsea*. a ship of war, being lost on it afterwards, and more than half of her crew were drowned.

The difficulty of the undertaking did not discourage a mercer of London, John Rudyard, who lived on Ludgate Hill. Fate had made a tradesman of him, but nature had intended him for an engineer. In July, 1706, he commenced the work, and succeeded in completing a wooden tower, which was pronounced by competent judges to be excellent. The new lighthouse was inaugurated in July, 1708, and for fifteen years was of good service to shipping. The severities of successive winters followed, the sea vented all its fury upon it; storms, even that of 1744, which left some marks of its severity, passed over without injuring it. Still this second lighthouse, which could resist the fury of the sea, was doomed to be destroyed by fire. On the night of the 1st of December, 1755, in the darkness of winter, when all was tranquil, at about two in the morning, the light-keeper, on going into the light-room to trim the lamps found it full of smoke: and, scarcely had he opened the door when, by a current of air, it burst into flame. The old light-keeper instantly called his two companions, but they slept heavily, and it was some time before he could get them to assist him. He endeavoured to find the origin of the fire, and availed himself of some water at hand. But how vain were such efforts. A shower of melted lead from the summit of the tower fell on his head and shoulders, and got even into his mouth; for the old man, whose name was Hall, and who died twelve years afterwards, was found by the medical men who attended him to have pieces of lead in his stomach.

The two other light-keepers were no less unfortunate than their companion in this awful trial. The supply of water was exhausted, and to get more they had to descend and remount seventy feet of steps, and nothing remained for them but to retreat and fight with the fire as well as they could. This they did from floor to floor till the fire had reached the lowest stage of the edifice. Happily the tide was out, and they were thus enabled to find refuge in the chasms of the rock. Towards daybreak the livid appearance of the sky over it was observed by some fishermen at Cawsand and on the Ramhead, who

hastened out in their boats. But now the tide was up again, and with it the morning breeze had freshened, and it was with the utmost difficulty that they succeeded in rendering assistance to the three terrified keepers, who were half dead from cold and wet. Such was the fate of the second lighthouse, built on the Eddystone.

It was reserved for Smeaton, who was a mathematical instrument maker, with the aid of science to overcome the combined influence of the elements. Warned without being discouraged by the fate of his predecessors' works, he determined to erect a tower of stone, and certainly his work may well be considered as a granite tree fairly rooted in the rock. He tells us himself that it was by imitating nature, and considering the trunk of an oak, that he conceived the idea of a building which, by its form as well as its solidity, should be able to withstand the utmost fury of the storm. On the 15th of June, 1757, the first stone of another, the present tower, was laid, and the last on the 24th of August, 1759, and this third lighthouse was now before me triumphantly looking down on the waves beneath it. At every freshening of the breeze, as we approached it, its effect was shown by the sea, and showed me the origin of its name—the Eddystone. In the midst of its circle of foam the tower stood peaceably with its bands of red and white paint—a mode of distinguishing these buildings much approved of by seamen.

To appreciate the importance of colour in lighthouses, it must not be forgotten that these buildings have two objects to fulfil. One is to give notice by the light, and the other to serve the mariner as a mark for recognition by day. In their last capacity they cannot be too readily seen. The natural colour of stone or granite is by no means favourable to this quality : it is too much like the rock itself, and not sufficiently conspicuous from the sea. Several experiments have been made on the subject. It has been observed by bird-catchers on the coast that birds of a dark colour are the most easily seen, and that young swans, on account of their gray colour, are most difficult to make out. Profiting by this hint from nature, those who desire to conceal themselves at sea always avail themselves of a light or gray colour.

Having landed, we scrambled as well as we could over the sharp edges of rock ; we reached the foot of the tower on its seaward side, for which we did not escape a wetting. The two fishermen who had brought me, beckoned to the Plymouth side, from which the Eddystone is about fourteen miles. It is only by examining the structure closely that its solidity can be appreciated. So smoothly are the stones placed together that the whole building is a solid rock. The interior is much the same as other lighthouses, a kitchen, two store-rooms, a bed-room, and the light-room.

On the granite cornice round the second store-room may be read the following words, which were certainly never better applied :—“ Except the Lord build the house their labour is in vain that build it.” And again, on the last stone of the building over the door of the light-room, the architect joyfully and gratefully says, “ *Laus*

Deo." In former times this lighthouse burnt only candles, but in 1807, the year when the Eddystone was turned over to the Trinity House, the old system was abolished for oil lamps, and reflectors of copper lined with silver. At the distance of thirteen miles this light is equal to that of the brightest star in the Great Bear. There is a gallery round the summit of the lighthouse from which a magnificent view is obtained of the sea. Having to withstand the effects of the seas from the Atlantic, and the Bay of Biscay, the tower has undergone some severe trials. The seas absolutely run up the tower, and passing above the crown of the building, fall in formidable cataracts around it. When seen under these circumstances the light appears as if it were inside a column of water like a waterspout. Some one observed to Smeaton that if his tower resisted the furious storm of 1762 it would remain to the day of judgment. I do not know what this may mean, but the Eddystone lighthouse braved that storm and many others besides without suffering any ill effect from it. During such storms the men in it say they feel the vibration of the tower like the trunk of an oak tree, yielding to the gale. Perhaps this is what Smeaton himself considered as the elasticity of the rock.

In its early history this lighthouse was the scene of a sad tragedy. It was then in the case of two men who kept watch and watch to trim the lights. One day a vessel in distress was seen drifting by the tower. The system of signals was not then well completed, and the sea was running so high that the boat dare not approach the lighthouse sufficiently near to be within hale. But what was passing then in the interior of the tower? The most alarming reports were spread along the coast, but nevertheless at night-fall the light was burning as usual. The two light-keepers had each a mother and a wife, but great was the distress of these poor women. At length, although the weather was bad, landing could be effected on the reef: when a dreadful odour was experienced about the tower that proclaimed the decomposition of a dead body. One man only was found alive, and what he had suffered was written in his face, confirmed by his sorrowful silence, by his haggard and emaciated appearance. His companion had been dead above a month. His first thought was that he would throw the body into the sea, and he was about to do so when he suddenly refrained from doing it by the thought which crossed his mind like a flash of lightning that he might be accused of being his assassin. He might be asked by the law like Cain, "Where is thy brother, what hast thou done with him." In this lonely place where crime would be so easily committed, what witness could he call to prove him innocent? Enough! He resigned himself to live with the dead! Being a cooper by trade he constructed a large coffin, in which he placed his companion, and then with the most determined courage went to his duty with the lights. Although a man was wanting not a vessel was lost for want of the light, which burnt as well as it always did. But the supernatural efforts which this poor man made broke his constitution. When the two were visited from the shore, it was said that a corpse was being guarded by a

phantom, and ever since this tragic occurrence three men have always been present to perform the duties of light-keepers.

The life of a light-keeper is indeed monotonous enough. Among their distresses the wind is so severely felt that they find it difficult to get breath, and they are then compelled to shut themselves up in darkness, occasioned by a murky sky, or by the spray of the sea which covers them occasionally. It is then that they are compelled to listen for many long hours to the raging waters, far removed from communication with their fellow-beings, and trusting in God. In the summer time when the tide is out they can scramble among rocks, or amuse themselves with fishing; and a little change as such a life presents, it nevertheless finds its followers. One of the light-keepers who had lived fourteen years in the Eddystone lighthouse, had become so fond of it that he had during two summers given his turn of leave to his companions. He would have given a third, but they pressed him so much that he consented to profit by the right which the regulations of the lighthouses allowed him. He had been a well-behaved man all the time he had been in the tower; but when on shore he is said to have been like a fish out of water, and no doubt to drown his sorrow he would keep himself in a half drunken state. In this condition he was conveyed to the lighthouse, where it was expected he would recover his temperate habits. But the poor man languished for some days and died.

(To be concluded in our next.)

THE JAMAICA MASSACRES.

(Concluded from page 15.)

The reader was left in our last when treating on the employment of naval officers and the use of naval customs in suppressing what is called the Jamaica rebellion (which is yet to be proved was a rebellion of so dangerous a nature as to require such services), he was left, we say, in the midst of the outrageous torture of flogging in man-of-war style, of an unfortunate person undergoing the infliction of 100 lashes. "Richard Thomson," the account says, fainted at eighty, and the remaining twenty were remitted, so that the officer had not to witness his again fainting under the infliction! We could not have supposed such merciless proceedings could have been carried on under a British naval officer.

Such proceedings, happily, are stopped, and in compliance with the unmistakable voice of the country, a commission is formed to investigate the whole matter, of which we shall no doubt have a full account hereafter. Still the services of the "blue jackets" have been so much applauded and have been so extensively reported that our former account would be incomplete without their appearance in this journal. Besides which, there are some fine touches of feeling evinced

in the proceedings that form an interesting part of the whole transaction.

To give the reader some insight to events which led to the massacres and the floggings, Dr. Underhill's letter and that of the unfortunate Mr. Gordon were preserved in our last. But we find so concise a statement of the whole circumstances in a recent number of the *Athenæum*, leading to Dr. Underhill's and Mr. Gordon's letters, that we shall press it into our services at once. It runs as follows:—

“Lord Russell has done something to calm the conscience of England by suspending Mr. Eyre from his functions, and by sending out a commission of inquiry into the causes of late events. These acts were a necessity of his position, and, we are glad to believe, a suggestion of his heart. We shall not judge the case until the evidence is collected, and particularly the evidence from the weaker side. But Mr. Eyre is arraigned on his own statement of the facts, and some of his subordinate agents are absolutely condemned out of their own mouths. Such a crime as the Jamaica massacre, assuming Mr. Eyre's reports to be true and his fears justified, has not been committed in the name of England for a hundred years. If the story which has reached our shores *be* true in mass and detail, the outrage is unutterable,—all but inconceivable; and unless the offence is promptly disowned, denounced and punished, our honourable name in the world will have received a stain which twenty generations will not suffice to clear away.

“Dr. Underhill has done well to re-publish the letter which has been so strangely misrepresented by the friends of slaughter on any pretext. It contains, besides his letter to Mr. Cardwell, the resolutions passed at public meetings held in Spanish Town and Hanover Parish, the evidence concerning the state of the island furnished to Mr. Eyre, on *his own petition*, by the Baptist ministers, Mr. Cardwell's letter to Mr. Eyre, and extracts from reports penned by Wesleyan, Moravian, and Presbyterian missionaries. Readers eager for the truth should examine its pages.

“Those who would trace the present suffering of Jamaica to their sources must go back to the times before emancipation, when William Knibb wrote to his mother, ‘The slaves have temporal comforts in profusion, but their morals are sunk below the brute, and the iron hand of oppression daily endeavours to keep them in that ignorance to which it has reduced them.’ If much of what is deplorable in the existing state of Jamaica must be attributed to the evil qualities of negro nature, a certain portion of those evil qualities may be fairly regarded as consequences of the system enforced by the planters and magistrates of Jamaica, who, in the ‘good old times’ of slavery and high prices, forbade their slaves to receive the instruction of the missionaries, and publicly flogged them for saying prayers in private. It is noteworthy that the speakers who are most eloquent about the vices of the Jamaica negroes seize every opportunity to express admiration for their former masters, and to hint that, after all, slavery was a wise arrangement and abolition a blunder.

"The way in which these sentiments are hinted or declared would be very amusing if it were not mischievous. At one time it is said that abolition ruined the planters, and this criticism is always made in a tone of voice implying that abolition was designed for the especial benefit of the proprietors of sugar plantations. At another time it is lamented that England did not foresee the evil effects of abolition on the slave-owners,—no notice being taken of the fact that the mother-country not only foresaw the special effects, but distributed £20,000,000 of money by way of compensation amongst the persons who were expected to suffer by the change, and who, having taken that prodigious sum of money, grumble that their estates yield less than in days when they could make their labourers work up to the extreme limit of their working powers.

"But a still more popular device for throwing discredit on abolition is the regretful tone with which certain critics allude to the change which liberty has wrought in the black man. Under the overseer's whip the docile creature used to work as much as he could, and though his back was often scored with lashes, his industry was recorded by marks of a different sort in his master's ledger; but now that the fear of flogging no longer stimulates his energies, he too often leaves off work when he has earned enough to satisfy his wants. He values the luxury of occasional rest beyond the advantages of incessant toil. In doing so he resembles the majority of civilized men; but whereas, in the cases of white men, this mode of taking life is regarded with approval, in the cases of Jamaica negroes it is termed a career of vicious indolence. It seems to have escaped these censors that one of the chief objects of abolition was to relieve the slave from the degrading necessity for incessant toil.

"But worse still remains to be told. The emancipated negro likes to earn fifteen or twenty pounds per annum as a peasant-farmer, rather than to earn fifteen or twenty pounds per annum as a farm-labourer. In the former position he is comparatively independent, and may sit at ease or labour according to his humour; in the latter position he must work steadily throughout the day and obey an overseer. His preference therefore in this matter is intelligible, and ought not to subject him to imputations of immorality in a country where men like to be their own masters, and where the highest ambition of agricultural workmen of the very best kind is to save money and become peasant-farmers of a very humble degree.

"With most persons it is matter for regret that in England workmen have so few opportunities of becoming peasant-farmers; and though political economists have not yet decided that agriculture by peasant-farmers is superior to agriculture by decidedly wealthy farmers; they are united in thinking that the agriculture of peasant-occupiers is far more profitable for a country than the agriculture of the class of tenants, too common in many parts of England, who are neither rich enough to farm highly nor so poor as to think of enriching a plot of ground by their individual labour. At worst, the peasant-farmer in England, Switzerland, France, America, is regarded as a

respectable and useful member of society ; but in Jamaica he is an 'indolent squatter,' and a 'lazy brute,' whose sole purpose in life is to be impudent to his social superiors. The ordinary talk about our Jamaica negroes runs thus :—*If they would give up their pernicious habit of squatting, (i.e. if they would cease to be peasant-farmers) and would, for fair wages, work industriously as farm-labourers on the estates of the sugar-planters, the island would soon be in a prosperous condition ; since the planters have urgent need of labour, and could readily supply the entire labouring population of the colony with employment that would prove advantageous to masters and men. This is the pet theory of Englishmen, who extol the white planters of Jamaica as enlightened Christians and rate the negroes as savages. The theory is a complication of blunders.*

“What is the real ability of the planters to supply the blacks with sufficient work ? Abolition was a great blow to the sugar-producers ; but as they were liberally compensated for their consequent loss they have no right to exclaim against that piece of legislation. Still the measure placed British sugar-farmers, working with free labour, at a great disadvantage with foreign producers of the same article who could command slave labour. Had the West Indian planters been left wholly to themselves after 1833, it is probable that the more enlightened and enterprising of their class would have used their share of the twenty millions of compensation-money in making arrangements for the growth of another staple and for a more profitable use of their land. But protective duties caused them to rely on the mother-country for help, and led them to think they could still compete with slave-owners. Even whilst the British producers had special advantages in the market of the mother-country they ran a losing race ; but as soon as the legislature equalized the duties on colonial and foreign sugars, the Jamaica planters lost ground still faster. Year by year the chief staple of the island has yielded the growers less profit, so that their present position is one of extreme depression. Succumbing to adverse fortune, some planters have ceased to cultivate their exhausted plantations ; on other estates the land under cultivation is steadily diminishing ; and on nearly all the most productive properties of the island fewer hands are employed than formerly, and those fewer hands are compelled to work at reduced wages. Not wiser than farmers in other parts of the world, the Jamaica planters have been ready to lay their misfortunes to any cause rather than their own management ; and however much they may differ amongst themselves on other matters, they have concurred in attributing much of their reverses to abolition,—that odious measure which they vainly resisted, just as old-fashioned Tories resisted parliamentary reform. Of the slaves they had no high opinion ; but concerning the free negroes—their laziness, insolence, dishonesty, treachery—they never grow weary of speaking with violence.

“For the most part, the agricultural workmen not employed on the estates are peasant-farmers, who grow provision for their own food and for the use of labourers working on plantations, and occasionally

they raise produce for exportation. In a large proportion of cases these men are freeholders, and frequently they are tenant-farmers paying as annual rent for their holdings sums varying between sixteen shillings and two pounds eight shillings an acre. For instance, at Ruff Bay and Bethlehem, 'lands are rented with and without houses; with, from 36s. to 48s. per acre; without, from 16s. to 18s.' These figures apparently present the average rents paid by small holders throughout the island.

"There is a fashion in England to speak of these peasant-farmers, or 'squatters,' as they are contemptuously termed, with disdain and injustice. They are represented as indolent, ignorant, knavish. Still it is beyond dispute that when they have neither inherited freeholds nor acquired them by good luck or industry, they pay high rents to their landlords; that in prosperous times they get money wherewith to purchase horses and carts, smart apparel, and personal comforts; and that in all times they are taxed more heavily than men of corresponding incomes in any other part of the world. The charges of indolence ordinarily preferred against these men are modified, if not altogether disproved, by facts. Certainly the tax-gatherer, whose demands are regulated by the white men of the island, bears hardly on Sambo, who is compelled to pay heavy indirect taxes for many of the first necessaries of life, and also at every turn to pay a direct impost. When the black peasant-farmer is compelled to keep a horse for agricultural purposes, and for the conveyance of his produce to market, he is compelled to pay 10s. tax per annum; whereas the farming-stock of planters used for working on the roads are not so taxed,—the sugar-grower, for instance, paying only sixpence tax on the ox that draws his sugar to the wharf.

"In like manner, the negro farmer cannot use a cart on the public roads without paying a wheel-tax; and though he pays thus heavily for the repair of roads, he in vain asks the authorities to give him a fairly passable road to market, when he happens to live away from the direct route to a gentleman's house. By the constitution he may be entitled to vote, but if his freehold be not worth more than £6 per annum he may not vote until he pays a 10s. registration fee. He has been compelled to pay for the importation of coolies employed by the white planters. With regard to church-rates, again, he is badly used, for he is required to pay just as much for the support of the Established Church in bad times as in good, the revenues of the establishment being raised by a rate that was fixed in more prosperous times, and remains just as high in the present period of famine, pestilence and bankruptcy.

"The black man feels this all the more as the Established Church is seldom *his* church. In short, this indolent squatter is dunned by the tax-gatherer in a fashion not at all calculated to teach him the advantages of thrift and industry. 'In fact,' says one witness, 'the whole system of taxation is wanting in the consideration which the mother-country exercises towards the industrial classes. The burden of taxation which for many years it has been the policy of the Home

Government to throw upon the better-to-do classes, to the relief of the poorer, is in Jamaica imposed upon the latter without regard to their being able to bear it! The island policy seems to be also at variance with that of the mother-country in laying taxes on food and the necessaries of life, which it has for many years been the home policy to reduce.'

"Badly treated at the best of times, the Jamaica negroes have suffered intensely during the last three years. Alternate drought and flood have rendered their provision-grounds so unproductive that famine has been prowling about the land for twelve months or more. Dr. Underhill says, 'the people are starving;' the Baptist ministers, with characteristic moderation, say, 'large numbers of persons, in various parts of the island, are in a state of starvation;' Mr. Eyre, in his despatch, admits the existence of famine, when he indorses Colonel Hobb's statement 'that the rebels are not the poor *or the starving*, but persons who are well off, and well-to-do in the world.' In the track of famine have come small-pox and fever; and in many cases pestilence has quickened the work of abject penury.

"Under these circumstances, what has the local government done to mitigate the distress of the wretched sufferers? *Nothing!* The high duties on imported necessaries were all retained; and several of those duties being *ad valorem* duties, the higher prices rose and the lower wages fell the more were poverty-stricken wretches compelled to pay into the Exchequer of the island. Amongst the consequences of this state of things may be noticed the fact, that months before matters reached their worst a considerable portion of the blacks were reduced to nakedness. The cotton famine reduced many people in England to their last shirts; but in Jamaica, where the common people dress themselves principally in cotton, it has brought numbers to actual nudity. The duty on cotton imports is an *ad valorem* duty, and consequently the scarcer cotton became the greater was the sum paid on every new cotton garment to the local government. 'Actually,' exclaimed the Hon. Mr. Whitelock, in the Jamaica House of Assembly, 'they were paying 38 per cent. now, when 12½ per cent. was before considered an outrageous *ad valorem* duty. Cotton goods, including Osaburgh, and all the wearing apparels of the labouring classes had increased 200 per cent. in value; . . . the consequence is that a disgusting state of nudity exhibited itself in some parts of the country.'

"This fact should be borne in mind for Mr. Gordon's sake. In the printed paper which formed a portion of the evidence against that gentleman the words occur, 'Starving People of St. Ann's; Naked People of St. Ann's;' and many English readers of that address were inclined to think the words extravagant. But they were no less true than terrible. The people were *starving and naked*; and this bestial nudity indicates an awful amount of suffering; for the negro delights in fine clothes. On many different grounds it is important to know that *extreme destitution had stripped the negroes for the 'cats,' wielded by General Nelson's subordinates!*

" Affairs were rapidly growing worse when, on January 5th, 1865, Dr. Underhill drew Mr. Cardwell's attention to Jamaica. Alluding to 'the unwisdom (to use the gentlest term) that has governed Jamaica since emancipation,' the writer is not complimentary towards the Jamaica legislature. He speaks of 'their unjust taxation of the coloured population; of their refusal of just tribunals;' but the tone of the writer is as meritorious as was his object. In one passage, by omitting to assign children to the agricultural labourers employed on estates, he seems to have over-estimated the number of people living by agriculture, but not working on estates; but the general accuracy and honesty of the letter have been sufficiently attested. Of its proposals we will not here speak; but as to the writer's action towards the Secretary of the Colonies, we say that Dr. Underhill would have been blameworthy had he neglected to put his special information at the service of the country. Of the transmission of Dr. Underhill's letter to Jamaica, of its publication by Mr. Eyre, of the dangerous agitation which followed no reader is ignorant.

" No wonder if disloyal thoughts rose in the breasts of the desperate. But there was one at hand who did his best to allay the storm. 'We know,' said Mr. Gordon, in his loyal address to the populace, 'that our beloved Queen is too noble-hearted to say anything unkind, even to her most humble subjects, and we believe that Mr. Cardwell and Her Majesty's ministers are too honourable and just in their intentions to wound the feelings of Her Majesty's colonial subjects.' Mr. Eyre, in his despatch, speaks of Mr. Gordon's 'misrepresentations and seditious language used to the ignorant black people.' Anyhow, he did not, on this occasion, mislead the ignorant black population concerning our Queen's disposition; but, strange to say, the paper from which these words are taken formed part of the evidence on which he was hung, as a traitor to Her Majesty! This is a fact which Englishmen will do well to bear in mind whilst they are waiting for the evidence which shall prove that George William Gordon planned a conspiracy amongst the blacks for the destruction of all the white and coloured persons of the island, including himself and his wife. On the other hand, in a spirit of strict impartiality, let readers remember all they have heard in Mr. Eyre's favour. Not forgetting the admissions, contradictions and disproved accusations of his despatch, let them bear in mind that, many years since, he was an Australian explorer, and that he pays £50 per annum for the schooling of a little niece."

The above is a fair general statement of the whole case especially as regards the negro population. Now we will revert to the naval part of those inglorious proceedings of castigations to which we are especially alluding.

A correspondent of the *Daily News* after contrasting the Indian mutiny with the Jamaica massacres, proceeds thus. He says:—

Now, let us turn to Jamaica, and we shall find such acts of cruel vengeance exactly "paralleled;" the only difference being that our brave soldiers and marines appear to have encountered no enemies to justify their barbarities; their most serious struggle appears to have been with the *mud and rain*.

"On the same day (Oct. 17) a party of *blue jackets*, under Provost Marshal Ramsay, went out, and meeting three of the rebels, they were immediately shot down in their attempt to escape. One fellow jumped into the river; but that did not save him."

How could these three murdered men be identified as "rebels" by the *gallant blue jackets*?* Their death was evidently part of a deliberate design, formed by the authorities of shooting all the coloured men they met with, resistance or no resistance. But worse follows:

"*Morant Bay, Tuesday, Oct. 17.*—The last brought in was a woman, Sarah Francis" [after the most infuriate floggings, '*well laid on by four stalwart blue jackets,*' had been going on for some time]. "She—the poor woman—confessed to a knowledge of Paul Bogle and Moses Bogle, brothers, having had meetings continually, at which many people used to be present—that at these meetings oaths were administered, but beyond that she knew nothing."

She, however, was at once ordered to be hanged by some subaltern in epaulettes, and it is added, "She met her death as coolly as possible." But the most cold-blooded murder in all this horrid list is perhaps the following:

"*Morant Bay, Thursday Morning, Oct. 18.*—The supposed rebels that were captured and brought in on Tuesday last and early on the following morning were examined by the provost marshal, at his office, but beyond being stragglers, nothing was proved that warranted the committal of the whole of them before a court-martial. About thirty were, one by one, *lashed to a gun and catted* [*'well laid on' by the gallant blue jackets above named,* who appear to have entered with extraordinary zest upon their work], receiving fifty lashes on the bare back, laid on after true man-of-war fashion. Among the rebels was George Marshall, a brown man of about twenty-five years of age, who on receiving forty-seven lashes ground his teeth, and gave a ferocious look of defiance at the provost-marshal. He was immediately ordered to be taken from the gun and hanged. No time was lost, and he was accordingly strung up."

Now here was a young man, a supposed rebel, uncommitted, to be hanged because nothing could be proved against him. Yet, although innocent, he was catted; and because at the forty-seventh lash the man, in his agony, ground his teeth, his white blood naturally rebelling against the injustice of his treatment, the ferocious provost-marshal, displeased with his look, immediately ordered him to instant death! If this murder is not required at the hand of the inhuman tyrant, then farewell to all ideas of justice or order in Jamaica. After this, to affect horror at the barbarities of the blacks—authentic or not—when such a diabolical act as this is fresh in our minds, is, to say the least of it, sheer hypocrisy. Is it because a few ignorant untutored children of a larger growth, like the negroes, in their blind passion take the lives of some fifteen innocent people, that, therefore

* A hundred blue jackets appear by the Governor's letter to have been thus employed, or landed for the purpose.

for days together ferocious savages like the Maroons and the equally savage white men, are to be permitted to revel in the blood of the helpless unresisting negroes, and to be incited to deeds of cold-blooded tyranny of such a character that generally they stain none but the annals of barbarous nations? Governor Eyre is at a loss to discover causes for the negro outbreak. But he need look far. The conduct of the civil and military authorities to the rioters is replete with instruction. We have no reason to conclude that this is the first time, in their relations with the subordinate race, that every Christian and humane principle has been violated, or that this is a solitary instance where wild passion and pitiless cruelty have characterized their treatment of an ignorant, inferior, and defenceless people.

The same paper observes :—

“Details are furnished of the jests of the sailors on the sufferings of the miserable wretches on whom they are performing this hideous office. Nay, with the last refinement of cruelty the lash is applied, before trial, to those who are set apart for trial, and who are afterwards shot! The *Morning Journal* of November 8th tells with ghastly glee of one Isaac Cameron, who confessed to having killed a volunteer at the Morant Bay attack, and prayed to be shot at once. ‘This favour the provost-marshal did not grant him, but by way of foretaste ordered him fifty lashes, which he duly received on his bare back, fastened round a column of the station. He remained there in company with another rebel and murderer, who was also tied, and had received twenty-five lashes, until noon, when they were taken down to the court-martial.’ It is afterwards incidentally mentioned that this man was sentenced, and hung.”

We would fain spare our space for other matter than the authority on which the foregoing statement is made, and although we have adduced proof *ad nauseum* of the part which our “*gallant blue jackets*” have taken in these disgusting proceedings, such authority is too important not to be preserved in the same page in which that remark is chronicled. Here is the plain statement of “the jests of the sailors on the sufferings of the miserable wretches on whom they are performing this hideous office of “*catting*?” Was there a British naval officer superintending these proceedings? Why ask the question? British officers of course were present with their men! And here are the disgusting scenes which were permitted by them. We do not envy any one of them their laurels of suppression. If there be one his crest and motto should be “CAT.”

A correspondent writes thus :—

“*Morant Bay, Nov. 5.*—I must tell you of a couple of rather amusing episodes which have occurred during these sad days. On the evening of Thursday, the 26th ult., several of the rebels were being flogged at the guns in the parade—others having been already executed—one fellow, at every stroke from the cat, bellowed out lustily, ‘Paul Bogle, oh!’ Jack, who sees fun in everything, hailed out to him, ‘Why don’t you sing out for Moses Bogle now?’ Thereupon he changed his note accordingly and at every stroke cried out lustily as before, ‘Moses Bogle, oh!’ As he had to receive seventy-five, there

was plenty of room for more fun for Jack; who told him to cry out now for George Gordon. Accordingly he changed the burthen of his cry and sang out for 'Massa Gordon, oh!' which cry he continued until his flogging was completed."

"On the Saturday following, while another chap was being flogged, Jack thought to have another joke and told him to sing out for Paul Bogle, 'Oh, Massa!' he cried agonisingly, 'him dead and gone to h— already, make him go.'"

If this be not refinement in cruelty, when these poor wretches were writhing under the flogging with a cat in true man-of-war fashion, we don't know what cruelty is.

Now we do not desire more than the foregoing proofs with what appears in our last, for establishing the fact of the part taken by our naval officers and their men in these ferocious details, in which it is said taking into account those despatched by the Maroons, let loose to slay and plunder (besides their own arms 800 rifles were distributed among them) the number of victims captured, flogged and slaughtered has exceeded 3,300! No wonder we read in a letter that would appear to be from one of the party which was originating the supposed rebellion, and glorying in such proceedings as these, no wonder, we say, that we read as follows of their effects:—

"A man belonging to one of the scouring parties in search of the escaped rebel Miles, informed me yesterday that the water of the Morant Bay River (Johnson River) must be unwholesome on account of the number of dead bodies lying in the upper part of it, which flows through the Blue Mountain Valley. He reports that in the Negro River especially—a tributary of the Johnson River—a great number of carcases lie about on its banks and in its shallows. It was through this district that the 6th, under Colonel Hobbs, marched on their way from Moncklands to Stony Gut, and no doubt they dealt out to the flying rebels their *righteous desert*. Those whom the soldiers spared the Maroons have destroyed, and my informant states that from 'the barracks'—Trinity district—down to Coley Estate only two cottages have been left. *I feel happy that such a judgment of extermination has been adopted*, and that besides the cottages in this district, those at Beckford town, Nuts River, Stanton Land, &c. have all been burnt down."

The first of these is no doubt from one of those planters who got up the name of rebellion to the original outbreak—one of those gentry who are bitter on the unhappy niggers because they rather work for themselves than for an overseer who would pay them at the munificent rate of sixpence per day. And another paper adds, the correspondent of a Jamaica paper, writing on the 31st of October, says:

"There is one continual scene of hanging day by day, and it becomes a matter for consideration whether the burial of so many people, packed, as I heard a blue jacket say, 'like sardines,' in the town, is not likely to produce some serious epidemic here—already the effluvia of the dead bodies commences to taint the atmosphere. Last night particularly, disagreeable effluvia arising from the graves in-

which these dead bodies are interred pervaded the entire town, and it was not without difficulty that one could avoid getting nauseated. This ought to be looked after. It is a matter of vital importance. One of the fruits of these misdeeds which may thus recoil on their authors !”

But, before we leave this part of our subject we must state that the Maroons above mentioned are hog-hunters as their name signifies, and were called from their wild and savage recesses to track the unfortunate negroes who were flying in every direction, concealing themselves in the woods for safety, and being dragged out by these barbarians and hanged on the spot ?

We say that our naval officers had an inglorious work imposed on them by Governor Eyre when he thought fit to require their services for such work as this.

We can imagine the terrified Governor magnifying the outbreak at the Court House (where justice was not to be had by the negro population) we can imagine, we say, such a person stating to an officer in command of a ship of war, that he was surrounded by a rebellion and required his assistance. What should have been the answer to such request. “By all means your Excellency shall have what assistance can be given you by Her Majesty’s ship under my command to *suppress rebellion* wherever it is in the island ; and the rebels when taken shall be lodged in your prisons to undergo trial as the rebellion is suppressed ; but neither my officers nor my men shall be converted into judges or executioners to carry out your views of hanging, shooting, or flogging, and not a single lash shall be inflicted by the “gallant blue jackets” of Her Majesty’s ship, until approved by the Commander-in-Chief of the station.” And such a reply would have satisfied any officer or governor of *reasonable views*, who would then find himself safe from rebels, and with the power of punishing the delinquents as he pleased. It is that power of punishment which we believe he had no right whatever to impose on naval officers.

Such, we say, would have been our view of the subject, and had that been followed out Her Majesty’s Navy would not have been implicated as it now is in proceedings which will be a disgrace to the authorities of the island hereafter, that will stick to the name of Jamaica for many a year to come. Whether our officers and men were legally employed out of their ships, as they have been among those unhappy islanders, we shall probably learn hereafter. In fact, whether the whole massacre which seems more like a dream than reality, has been legal or not, remains to be seen ; but certainly opinions here are not very flattering as to the legality of the measures of Governor Eyre. But of the whole measures the following is a dispassionate opinion of it from our neighbours across the water :—

“The more the conduct of these colonial officials towards the rioters is made public, the more unjustifiable it appears. We say rioters, for there is no shadow of evidence that what was called an ‘insurrection’ is really anything more than a kind of bread-riot, made by very poor and ignorant people. As a riot it did not approach in danger or

passion to our New York riots, three years ago. And yet British soldiers have been hunting down miserable negroes suspected of the slightest sympathy with the rioters, lashing them and hanging them without trial or evidence."

"To increase the horror of these proceedings, the wild savages of the island have been put on the trail of the fugitives, whom they will certainly slaughter without mercy. But the act of greatest atrocity has been committed against a respectable citizen, who had been a kind of leader of the blacks in the legislative body, Mr. Gordon. This man was not a negro, but a very light mulatto, a justice of the peace and a member of the legislature. He is admitted, even in the English Tory press, to have been a most exemplary citizen, very benevolent to the poor, and a member of a Christian Church. He was not near the scene of the riot, and had nothing to do with the outbreak. But his offence consisted in having written in last March to Mr. Cardwell, Secretary of state for the Colonies, a letter of protest against the mode of government of the island by the former planters, urging in the most temperate manner that the poor peasantry were ground down by excessive taxation; that the 'Whipping Act' degraded them; that certain improvements, such as a 'ship dock' and other public works, were adding to the burdens of the people, and that bad administration was beggaring the island. It was such a letter as any public man in any constitutional country ought to write in the interests of his constituents. There is not a word in it of a rebellious or revolutionary nature. Mr. Cardwell, after some interval, sent the letter to the governor of the island for consideration. Governor Eyre had copies of it forwarded to all the interior parishes, in order to expose to the planters the machinations of their enemy. In this way the people came to know of it, and, it is alleged, were excited by it though it is very evident that they had wrongs enough to arouse them, without supposing that this calm financial letter could have had any great effect."

"Mr. Gordon, who was outside of the district where the riot had burst forth and where martial law had prevailed, was arrested on Saturday night, brought over to the scene of the disturbance, and on Monday morning was tried by court martial, and executed, amid the tears of great numbers of his friends—the only evidence, so far as appears, being the letter he had written to Mr. Cardwell, and the real cause being, without doubt, the jealousy and hatred of the planting interests of a leader of the blacks. Another cause of the riot is alleged by Governor Eyre to be a letter by Rev. Dr. Underhill, secretary of the Baptist Missions, also to Mr. Cardwell, on the economical and administrative difficulties of the island—a calm and statesmanlike, financial discussion of the abuses of the planting administration, confirming much of what Gordon had said, and making the case still stronger against the planters. The whole proceedings of the British officials in this matter are a disgrace to a civilised nation. There is no evidence of anything more than a riot, and yet poor people miles away are shot, whipped, hung, hunted by savages, and

the leaders of the peasantry—men of loyalty and character—hung on the smallest pretext.”

In which occupation, and especially the flogging, the Royal Navy has taken its inglorious part. And as we have already said, if such proceedings are to be admitted into naval routine, we shall find our naval officers called on in future to “cat” any unfortunate negroes by the desire of some tyrannical agent who may induce a governor to get up a panic and establish martial law where he pleases. There is work enough for them in “catting” the anchor—we hope that this new fashioned “catting” is not to become lawful—To us it has appeared neither more nor less than an abuse of power.

The Commission of Inquiry into these Jamaica matters consist of Sir Henry Storks, Mr. Russell Gurney, Recorder of London, and Mr. John Blossett Maule, of the Midland Circuit, Recorder of Leeds. Mr. Maule has received the highest recommendations from the judges on the circuit, Mr. Justice Shee and Mr. Justice Mellor. Mr. Gurney and Mr. Maule proceeded to Jamaica by the early January packet, accompanied by Colonel Walpole, military secretary on the staff of Sir Henry Storks. Mr. Roundell, barrister, will act as secretary to the commission, and not as secretary to Sir Henry Storks, as was erroneously stated on his departure with the new governor.

We cannot resist preserving the following extract of a letter from Jamaica, that appeared in the *Daily News* of the 20th December. It is a choice morsel that should not be lost.

“My health still continues good here, and I purpose sending you some choice plants by the next packet. The reign of terror still continues. The governor wants to be invested with despotic power. The planters are at loggerheads with him as to who originated the belief of a general rising of the blacks. The planters say it was the governor, and the governor says it was the planters. It is a pretty kettle of fish, and I expect the home authorities will have to interfere. The flogging and hanging still continue, and this beautiful island is turned into a slaughter-house. Niggers although mentally obtuse, evidently have a more sensitive physical organisation than we have, and cannot endure sharp and sudden pain so well as whites. I am told they howl and gesticulate terribly when under the lash. I heard a young naval officer who has been concerned in the flogging say that Quashee can't stand the cat half so well as an English jack tar. The flesh of the nigger when cut by the cat turns white, and the blood that flows is the richest claret colour that you can imagine. The nigger women who have been flogged stand it better than the men. Perhaps shame at the indignity strings their nerves, for some of the floggees are mothers. Left-handed men have been employed to flog, as they strike the hardest. How curiously intense is the hatred of race. A white man will kill but not torture a wild beast, but he will gloat over torturing a black man or woman. You may be able to explain this, I can't. I have heard several influential men say they wish Gordon, a rich brown man, whom I mentioned in my last letter, had not been hung. They admit he was a rank demagogue,

and deserved hanging, but that there was no necessity for it, and he might have been banished from the island. Eyre, I think, should never have been sent here. He is the wrong man in the wrong place. If ever a Macaulay gets holds of this Jamaica business, depend on it he will not place it on the credit side of our ledger."

In point of fact, this rebellion as it has been conveniently called, to justify the fears of the governor and to promote the revenge of the planters, is described by a writer who concludes his description thus :

"The truth is, that in consequence of a *riot* in which twenty black lives were taken by the white volunteers before a drop of white blood was shed, and the subsequent loss in hot blood of less than twenty white lives, hundreds, nay thousands of black men, *women* and *children* have been butchered and tortured by Her Majesty's troops, led on by Colonels Nelson and Hobbs, and by bands of savages under Colonel Fyfe, with the entire approbation of Governor Eyre—that all have been shot and hanged, *unresisting* and in cold blood, that many have been deliberately hanged and flogged, ("*catted*," as they call it) without trial of any kind—that some have even had their punishment intensified by being cut to ribbons by the cat-o'-nine-tails, in the morning and then hanged in the afternoon, and that hundreds of *women* have been flogged by British soldiers and *SAILORS*, the latter belonging to Her Majesty's Royal Navy! all for the satisfaction of the Jamaica planters, and the grumbling of a panic stricken governor's imagined *rebellion!*"

THE LAST OF THE DUNCAN DUNBAR.

The leading object in the establishment of this journal several years ago was virtually the improvement of the charts used by seamen. Although commenced, and long carried on when its author was serving in the Hydrographic Office of the Admiralty, it was desirable that those used by the merchant seamen should be no less improved than those of Her Majesty's ships. It was quite true that these were at the service of the mercantile marine, but it is well known that the trade took good care to place in the hands of those officers their own charts for obvious reasons in preference to those of the Admiralty. But still the effect was good; as the contributions to these pages from the officers in command of those ships amply show. It formed a receptacle wherein they could see their own contributions to the general good, and an incitement to their exertions in that way. We may refer, with pride, to the state of the charts of the present day, in comparison with what they were in 1832, about thirty-four years ago.

Another object which became our special care also was the ever-recurring amount of wreck, and consequent great loss which was taking place among our merchant shipping. This is a long

acknowledged blot in our national character and seems likely to remain as such. The provident effects of marine insurance by spreading loss of property among the multitude, and thus lightening it to the few enables the mercantile marine to rise Phoenix like from calamities and loss of this nature that would overwhelm individuals however rich. Still in the category of such losses, it is very well known that there are those which should not be. We have lived to record the fact of wilful loss for the sake of gaining by the insurance. Our pages relate this ; not in single solitary cases, but several quite in the way of business. And it is by no means improbable that for every case brought to light there were others that were not. Still these were wilful cases, and these were but a single kind among multitudes of other kinds. How often did we express our indignation at the continual occurrence of these. In our early inexperience we were appalled at such matters, and in 1841 were enlightened by a correspondent on the cause of so much destruction. The letter which we received was from Ipswich, and we quoted it in the following year, when we had before us a table of huge length, as our Number for January of that year will show. We shall repeat the remarks that we committed to paper then, because they suggested a measure that was afterwards carried out, some seven or eight years since, but at a time when the Government took up the subject of the mercantile marine, and carried out some wholesome legislation regarding it. These remarks we say were produced under a plethora of wrecks. We were fairly sick and tired of them when we said :—

“There is one part of our duty as journalists, which by an overpressure of other matter we have rather lost sight of latterly. It is true there is a painful sameness in performing it, of human suffering scarcely credible, sickening to the heart. The subject of wrecks of British shipping, the destruction of British lives and capital, all have full often been forced before the public, and with the harrowing tales of misery told by its victims have left an impression without producing more, save in our particular branch of maritime adventure—the timber trade of Canada. Mr. Palmer is entitled to the gratitude of his countrymen for having succeeded in checking, to a considerable degree, the enormities which were perpetrated in the North American timber trade ; but still the annual number of the wrecks of British ships continues much the same as ever, as our own tables will show for the last ten years ; and the wholesome power of legislation has unhappily not yet reached the sources of this evil. We shall, however, return to this subject occasionally, in the hopes that on some future day, we shall see the evil cured, deep-rooted even as it is.

“If we cast a glance over our tables, it will appear that there is as much variety in closing the career of a merchant ship, as there is in terminating that of a man ; and even the various verdicts of coroners' inquests are no less applicable to those frail vessels which roam about the ocean, as to those frail bodies which are tenanted by spirits, and form the human species, not excepting, alas ! even the act itself of

felo-de-se. Substituting 'the visitation of man' for 'the visitation of God,' let us take as the first case that of 'sudden death.'

"The following is common enough: 'The ship sprang a leak at sea, and foundered.' The verdict in this case would be decidedly 'died by the visitation of man;' for what business has a ship to spring a leak, but from being badly built by man. Again, the recent cases (without looking into annals of suicide of a remoter period) of the Wallaces afford undeniable instances of *felo-de-se.* The *Dryad*, the *Isabel*, and the *Lucy* are the most recent cases of this nature brought to light, and the former fairly investigated."

"Then we have lingering deaths from sickness and various causes, carrying off mortal man, and we have enough of protracted suffering before the ocean barque finally disappears, as 'a thing of life.' If we refer to the long list of *fatal* accidents on shore, accident is a prolific cause of destruction to ships (merchant ships we mean) at sea. A man loses his leg, and the accident causes his death. A ship loses her masts in a gale, she becomes eventually a prey to the waves, and sinks with all her crew, to rise no more. A vehicle on wheels is capsized, some serious fracture of limbs, perhaps death occurs; that other vehicle called a ship (we are alluding to merchant ships) capsizes from too much sail, serious suffering ensues, caused by half starving, whole starving, drowning, to say nothing of broken limbs, originally produced by the accident. Again, a vehicle on wheels comes in contact with another at full speed, the weakest here goes to the wall in earnest, and broken limbs and death generally ensue: a ship runs foul of another (how frequent has this been of late), frequently one of them sinks from the injury she has sustained; indeed, if there be a great disparity in point of size, the lesser one vanishes, she obeys her summons to lower regions; but, in most cases, loss of life is the consequence. Then again, the vehicle on wheels wanders from the proper road, and gets into mazes of difficulties, if not lost in quagmires, or, thrown into ditches; the vehicle afloat, how does she not wander from her course, and perils her safety amidst shoals and narrow channels, and in many cases is finally lost."

"But we have not done even yet: How often does the vehicle on shore, with valuable lives in it, dash itself against some obstruction by the road-side in the shape of a stone, or post, or gate, sacrificing those lives; and how often does that vehicle afloat, the merchant ship, run against those terrors to seamen, called rocks above water, and rocks under water; and as if there were not enough of rocks for ships to run against, they must run against something, and therefore, icebergs answer the purpose as well. All these would perhaps fall under the head of 'Accidental death.'"

"But we spoke of sickness producing death, that scourge of the human race, and who shall say that it does not equally show itself as the scourge of our merchant shipping. In both cases it is either constitutional (inherent we mean) in the system of the individual, or else the effect of some immediate cause, such as exposure, &c. Now there cannot be a more decided proof of constitutional sickness in a ship

than bad construction, and timbers being too few, and badly put together, fastenings insufficient, tree-nail holes left open, or only covered to hide the deficiency; a kind of parsimonious system arising from certain causes, to crown all in fitting; a deficiency of spars, small anchors, short cables, no changes of sails, bad cordage, all tending to make a bad ship worse.* What is the consequence? She is as unfit to encounter the storms of the ocean, as the sickly individual is to encounter the vicissitudes of life, and a short-lived miserable existence is passed till she meets her untimely end. The coroner would not be called in here, this would be considered as the course of nature. But why, we should like to know, may not the coroner be called in cases of wreck of a merchant ship, where the crew and captain are saved. In other words, why should not an inquiry be made into the cause of the loss of every merchant ship as with the ships of the Royal Navy, and the payment of the insurance withheld until the causes of her loss are fairly stated. The causes thus ascertained, would themselves point out their own remedy."

How we persevered in our wreck-tables until we had the gratification of seeing, some time about 1848, a department introduced by the Government (Mr. Labouchere) to carry out the very measure which we had proposed in the concluding words of the above extract, instituting an inquest into the wrecks of the Mercantile Marine. Their officers, armed with the necessary authority, with the Mayor of the place to which the ship belongs, or near to which she is wrecked, form a court of inquiry into the cause of wreck. And some highly important facts are thus brought to light which would otherwise never see light. And there can be no doubt of their excellent salutary effect. We have often regretted that our pages are so much overrun with other important matter that we have been unable to find room for them. Still we glory in seeing the point established, and if a certificate of competency is temporarily suspended in consequence, we see at once with the rest of the world where blame attaches, and neglect, or incompetence, or whatever other cause which has produced the disaster, too often attended with suffering and loss, receiving its due reward.

There could be no doubt of the great importance of this measure, and the manner in which these courts of inquiry have been carried on have been in accordance with the spirit in which they were established. But we confess to some misgiving whether the spirit had not got worn out by these inquiries on reading the recent report on the loss of the *Duncan Dunbar*. Ominous name: how little we thought that even the name of that ship had been recorded in the same volume to which we referred about the *Rocas*, as being attended with the loss of above a hundred lives, at the entrance of Sydney, in Australia.† There it stands (in p. 665, 1857,) of this work, and here on the *Rocas*, this islet so celebrated for loss of life; also in the *Nautical* for 1857, but

* We have since known a wreck to be found full of devii's bolts! and saw one of them brought home as a curiosity.

† She was lost at the Heads of the entrance to Sydney, 1,980 tons, with 146 lives! valued at about £100,000.

happily in the last, *Duncan Dunbar*, none; but instead of that, the outrage of loss, risk of drowning, exposure to the elements, to the vermin of the ground, forfeiture of time and necessary comforts to a large number of females, all of which, in our estimation of the subject, arose from as palpable a piece of culpability as could be produced among the annals of these inquiries.

Such was the opinion to which we had inevitably come respecting the loss of the *Duncan Dunbar*, before we had seen the Government report which had led us to certain doubts, but not as to our own conclusions. It was therefore with no little satisfaction that a few days afterwards we came across the following in the columns of a paper especially devoted to maritime affairs. We were so satisfied with the complete coincidence of the views of the Government and our own, that as a part of our history of this remarkable wreck we take leave to preserve the whole here, and it runs thus:

The following correspondence has passed in reference to the loss of the *Duncan Dunbar*:—

“Board of Trade, Whitehall, Dec. 21st.

“Sir,—With reference to your report on the wreck of the *Duncan Dunbar*, I am directed by the Board of Trade to inform you that they were so dissatisfied with some of the evidence that they thought it desirable to take the opinion of the Hydrographer to the Admiralty.

“I now enclose his report for your information, and I am to add that the professional officers of the Board of Trade entirely agree with the Hydrographer.

“His report states the facts of the case so fully, and points out the errors in the evidence of Captain Jasper Selwyn and Captain Trivett so distinctly, that it is unnecessary to enter at large upon these subjects in this letter.

“The Board of Trade have only to observe, that the witnesses in question (upon whose testimony the conclusions of the Court seem to have been based) not only assume hypothetical currents (of the actual existence of which there is no evidence whatever) in order to account for a wreck which the course steered is quite sufficient to account for, but they pronounce and give credit to the opinion that a master of a first-class ship in the Merchant Service, when within two or three hours' sail of a dangerous reef, and steering directly for it, is justified in neglecting the obvious precaution of taking an afternoon observation.

“The Board do not believe that such an opinion obtains among the intelligent officers of the Mercantile Marine; but if such an opinion were, by means of the evidence in question, to receive a credit which it does not now possess, the result of the inquiry would be to do serious harm, and to increase the dangers of shipwreck.

“In order to prevent the evidence in question from having this effect, the Board of Trade think it their duty to publish this letter and the enclosed report from the Hydrographer.

“I am, Sir, your obedient servant,

“T. H. FARRER.

“To James Traill, Esq., Police Court, Greenwich.”

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“ In regard to the loss of the *Duncan Dunbar* on the Rocas Shoal, I have to remark, that supposing the ship to have been in the position as stated in the evidence at noon—viz., lat. $2^{\circ} 56' S.$, long. $33^{\circ} 11' W.$ —and to have subsequently steered, as stated, from S.W. $\frac{1}{4}$ S. to S.W. b. S., and gone at a speed of between seven and eight knots—moreover, to have experienced the usual westerly current, as shown on the Admiralty Chart—then she should as nearly as possible, have been on shore on Las Rocas at the moment she was, and her grounding proved that her chronometers were in no appreciable degree in error, and that the current as shown on the chart, and stated in the Admiralty Sailing Directions, really did exist.

“ It seems very improbable that the witnesses examined did not give the extreme westerly course made by the ship, and the more so as it appears the log-book was altered some days after the wreck to give the ship a more westerly course than had been assigned to her at the time.

“ As regards the evidence given by Captain Selwyn, R.N., and Captain Trivett, of the Mercantile Marine, to which the Board of Trade desire to draw special attention, I have to observe that, in regard to the southerly and easterly current described by the former officer as existing from sixteen to twenty miles N.E. of Las Rocas, there is no evidence whatever of such a current in the records of this department; but, on the contrary, all the documents bearing on the subject go to prove the existence of a westerly current. In the plans of Las Rocas made by Capt. Parish, R.N., in 1856, and by Capt. Selwyn in 1857, no current is mentioned; and in the remarks of the latter officer which accompanied his plan, he notices the fact of the shoals lying in the heart of a westerly current, but communicates no information in regard to the southerly and easterly current stated in his evidence to have been established by him.

“ In regard to the remarkable difference in the latitude and longitude observed by Captain Selwyn, I have only to say that Lieutenant Lee, of the United States' Navy, fixed the position of the shoal in 1852, that Capt. Parish, R.N., made a survey of it in 1856, and planted 100 cocoa-nut trees, and that Captain Selwyn again made a plan of it in the following year, and planted seven trees, three of which, appear to have survived; that the observations of these three officers in regard to latitude agree within five seconds, and that the difference in their longitude amounts to two or three miles, which is no more than was to have been looked for in results obtained by ordinary ships of war not specially supplied with instruments for the purpose.

“ With reference to the statements of Captain Selwyn and Captain Trivett, that they would have pursued the course adopted by the Master of the *Duncan Dunbar* under similar circumstances, I am obliged to say that I entirely differ from them as to the prudence and safety of such a course; and it is, I think, a dangerous doctrine to disseminate, that a Shipmaster in charge of life and property is justified in abstaining from making all possible observations to ascertain his position when in the neighbourhood of danger.

" A single observation for longitude at 4 p.m. on the 7th of October ought to have prevented the catastrophe which occurred only four hours later.

" In regard of the recommendations of Captain Selwyn, referred to in the letter from the Board of Trade, which, I presume, alludes to the desirability of the establishment of a Lighthouse on the Rocas, I am of opinion that, however valuable such a light might be to the local trades, and admitting in an abstract point of view the utility of a light on any small low island in the middle of the ocean, it is not necessary for ocean ships, which would assuredly never adopt so westerly a route as the Rocas, unless compelled to do so, which would very rarely be the case.

" 'It is submitted that these observations should be referred for the information of the Board of Trade.

" 'GEO. HENRY RICHARDS, Hydrographer.' "

From " Mitchell's Maritime Register," Dec. 16th.

These papers indeed are to the purpose and confirm us in our opinion which we have always held that the Government was in earnest when they established the inquiry into wrecks. We shall now quote the letter to which we alluded from our correspondent at Ipswich, which appears in our volume for 1841, p. 49, as a summary of the causes of wreck to which causes another or two may be added :

Ipswich, Dec. 8th, 1840

" Sir,—The separate as well as combined causes of shipwreck and other loses at sea, are more numerous than are generally imagined. The following list, the result of some experience and observation, though set down at random, may perhaps surprise some. But if the consideration of it should at all tend to liberality in the outfit on the one hand, and to increased alacrity and circumspection on the other, it will have the desired effect :—

" Causes of the loss of ships at sea, by wreck and otherwise.

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| 1. Short complement of men. | sickness, maims, exhaustion, &c. |
| 2. Deficiency of materials and stores. | |
| 3. Deficiency of water and provisions. | 13. Drunkenness, revelry, &c. |
| 4. Bad materials : anchors, chains, boats, spars, sails, cordage, &c. | 14. Discipline, too lax or too severe. |
| 5. Bad quality of water and provision. | 15. Mutiny and insubordination. |
| 6. Teatotality coffee instead of rum, &c. | 16. A dead and alive set; no devil on board. |
| 7. Bad condition of ship from age, want of repairs, caulking, and looking to. | 17. Discord and dissention; the devil let loose. |
| 8. Bad construction of the ship, out of trim, &c. | 18. Deaths, desertions, and discharge. |
| 9. Incapacity of masters and others. | 19. Fire. |
| 10. Presence of captains' wives and other women. | 20. Collision. |
| 11. Insanity. | 21. Upsetting in a squall. |
| 12. Inability of men, or crews from | 22. Shifting of cargo, &c. |
| | 23. Consternation: the ship on her beam ends, on fire, water-logged, &c. |
| | 24. Shipping of seas, foundering from stress of weather &c. |

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| <p>25. Springing a leak by starting her butt end, &c.</p> <p>26. Deep lading, crowded stowage on deck, &c.</p> <p>27. Sticking on rocks, grounding on shoals, &c.</p> <p>28. Driving on a lee-shore.</p> <p>29. Impressment at sea, detention, and deviation.</p> <p>30. Incorrectness of charts, compass, &c.</p> <p>31. Want of care, bad dead reckoning.</p> <p>32. Want of vigilance; bad look-out.</p> <p>33. No latitude by observation on account of fog, &c.</p> <p>34. No flying the blue pigeon, no regard to lights, bells, drums &c.</p> <p>35. Capture or destruction by an enemy or pirate.</p> <p>36. Struck or blown up by lightning.</p> <p>37. Masts, &c. rolled or pitched away.</p> <p>38. Driving with a foul anchor; a kink in the cable, &c.</p> <p>39. Parting a cable.</p> <p>40. Staving of boats, carrying away of masts, splitting of sails, &c.</p> | <p>41. Sleeping on watob, drowsiness of helmsman.</p> <p>42. Breaking adrift of floating lights, &c.</p> <p>43. Mistaking of headlands, lights, &c.</p> <p>44. Sinking, or destroying a ship purposely.</p> <p>45. Rising of prisoners, convicts, &c.</p> <p>46. Fool-hardihood, guns run out when blowing hard upon a wind, press of sail with a crank ship, &c.</p> <p>47. Carrying away top-masts from neglect of breast backstays after going about.</p> <p>48. Broaching to when weathering a headland in a gale of wind.</p> <p>49. Incapacity of persons having charge as pilots.</p> <p>50. Abandonment of ship without sufficient causes, in case of wreck, officers leaving their juniors in command with orders to land treasure, men, &c.</p> |
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“These perils and faults, often disastrous, and sometimes fatal, to which sailing vessels are liable, to say nothing of steamers, are not all that might be mentioned. A ship may be lost from circumstances which seem trifling in themselves, and even ridiculous. An East Indiaman was burnt, owing to a boy wanting to look into the bung-hole of a puncheon of rum, to see if it was full. Another (as is supposed, for no one has told the tale) from the habit of smoking between decks; and a third, because a cask was not properly secured. I have known an officer’s cabin set on fire from the socket of a candle lamp going with a spring instead of a serew, and an instance of a fine new ship of 300 tons within an ace of being driven on the Brake, with loss of main mast and mizen mast, because the carpenter, who had the quarter watch, when riding at single anchor in the Downs, though he saw a ship driving broadside upon us, was afraid of calling the hands out, for fear of making a *mistake*, and so getting himself laughed at, and though we had an experienced captain. A man should never go to sea after he is turned of fifty. Mr. Editor, We were not much the better off for that circumstance. There is a saying, ‘For want of a nail the shoe was lost; for want of the shoe the horse was lost.’ This adage, I think, applies with peculiar force to so large, complex, and animated a machine as a ship at sea in stormy weather.

“AN OLD TAR.”

Now we need not look back among these for the causes of the miserable wreck of the *Duncan Dunbar*. Although there they stand

plain enough. The words of Lieutenant Parish were prophetic when he said in the pages of this work, "A careful attention to the deep sea lead would alone betray to a vessel in doubt the vicinity of the shoal" * * * and "I do not see that any masters would be justified in endeavouring to sight the same (Rocas), a proceeding which might be attended with considerable danger." What was the *Duncan Dunbar* about? The blue pigeon was not flying, but she was *looking for the Rocas in the dark!* ! !

The wreck of this ship seems likely to become memorable if only from the discussion which it has produced. But if that discussion be the occasion of a light on the islet, it will have conferred a benefit on *American* ships especially, and we do not anticipate any other. Since the foregoing was in type a meeting has been held of shipowners, commanders, officers and others, we are told, at which Mr. Crawford, M.P., presided, and the following resolutions are reported of it in the *Daily News* :—

"1. That this meeting has heard with surprise and concern of the course pursued by the Board of Trade in reference to the result of the inquiry into the loss of the *Duncan Dunbar*, and that the commander of that vessel having been honourably acquitted, after a lengthened investigation by a court of competent jurisdiction, of having contributed in any way to the loss of his ship, any subsequent attempt on the part of a public department to reflect on the finding of that court, or on the evidence on which its conclusions were based, or on the reputation of the accused, is repugnant alike to the principles of national justice and the maxims of English law.

"2. That the existing constitution of the courts of inquiry into wrecks and casualties at sea is unsatisfactory in practice, and this meeting pledges itself to employ every legitimate effort to reform the constitution and mode of procedure of these courts, or to procure their total abolition in order that a more satisfactory tribunal may be established.

"3. That this meeting sincerely believes that justice can never be done to shipmasters, whose conduct may become the subject of judicial investigation, so long as that investigation is conducted by officials directly connected with the department from which the inquiry emanates, and whose decisions are liable to review by the said department.

"4. That the nautical assessors at these courts of inquiry should in no case be salaried officials of any department, but that they should be selected by rotation from a list of shipmasters who have passed examination for competency, prescribed by the Board of Trade; and that an appeal should be allowed from the finding of the court of inquiry to the High Court of Admiralty, whose decision should be final.

"5. That the westerly route pointed out by Commander Maury for vessels crossing the line, offering, as it does occasionally many advantages, may be safely left to the discretion of individual commanders.

“6. That in the opinion of this meeting a lighthouse established on the dangerous reef of Las Rocas would be a great boon to navigation and commerce, and is demanded in the interests of humanity.”

Our limited space will admit but of a brief remark on these resolutions. In regard to the first our introductory remarks above will indicate our opinion on the necessity for courts of inquiry that seems even to have been agreed on at the meeting—and that whatever inquiry should be established that the result of it should not be subject to the revival of the Government, the *present case proves would be at least inexpedient*. As to the second, we do not see what more satisfactory tribunal could be established than the present, open as it is to the scrutiny of the *experienced* navigators at the service of the Government.

Nor do we see the force of the third, inasmuch as we believe the official gentleman who hold these inquiries are themselves seamen of the mercantile marine, the peers of those who complain, excepting of course the magistrate under whom they are held. The resolution No. 4, if we are not wrong in our premises, is met in the observation on No. 3. The Court of Admiralty is purely civil, but assisted by officers of the Trinity House who really are officers of the mercantile service, and therefore the argument is already disposed of. The resolution No. 5 no one could object to, and seems hardly necessary for it is carried out every day. And as to No. 6, who could object to a light on the Bugbear, as Maury calls it: but are we to go to the expence of it for the sake of the ships of all Europe and America when Brazil is rich enough to undertake it—who put the light on the Abrolhos? That indeed, was a boon to navigation, and that on the Rocas would be a better warning to them than all the wrecks that the new route has already collected there.

But more of this anon!

THE ROUTES ACROSS THE EQUATOR.—*The Eastern Route: Proposed Light on N.E. Angle of Bonavista.*

We find the following important remarks on the passages across the line, and transfer them here from the *Shipping Gazette*, considering as we do that the author is conferring a benefit on his brother seamen, in pointing out which, after all, is really the best course to the Southward, across the line, and which in our opinion is undoubtedly the old one, or the African, between that coast and the Cape Verd Islands. This the author himself clearly shows. But of its dangers, those are what we would treat upon.

In the first place, the old charts had the Porgas Bank, mid channel, but we happened to be serving in H.M.S. *Leorn*, which proved the non-existence of that bank, and it disappeared from the charts accordingly.

Yet bugbears in the shape of rocks will get up, and accordingly they too were reported by ships, and some were even displaced by the *Leven*, and the readers of the *Nautical* will perhaps remember the cares and pains we took to trace them, among which were the *Hartwell*, the *Madeleine*, and others; but all which we displaced from the channel and lodged on the N.E. reef of *Bonavista*.

It is this part of the channel to defend ships passing through from the ledge of rocks extending off the N.E. angle of *Bonavista* of the *Cape Verd Islands*, that *Captain Hedger* asks for a lighthouse, a place that is quite as much entitled to one, and more so, for British navigators than the *Rocas*.

By all means let the *Rocas* have one; but let us ask which vessels are most interested in that? Are not these they which come from the Western side of the Atlantic? What do the ships of the United States desire? simply in their passage across the line to get to the Southward as soon as possible, and to save going East as much as possible, as shortening distance. *Mr. Maury* has urged his Western route by the *Rocas*. By all means let him have it, lighthouse and all.

Yet why should English ships from the Eastern side of the Atlantic follow him. This they do now it is said, at least a very large number, and some to their loss, and play the American's game by exemplifying with their wrecks and their longer passages the great desirability of placing a light on the *Rocas*, just what *Mr. Maury* wants—just what the American ships want.

By all means we say let him have it. But we say with *Captain Hedger*, let the Portuguese authorities give us one for our English ships too to keep them clear of the reefs of *Bonavista*, which has been the bugbear to the best route; for we quite agree with *Captain Hedger* that to *Mr. Maury's* Western route, blindly followed by English ships, may be attributed "*the great loss which has so frequently taken place on the Rocas.*"

But there are no dangers in the deep water channel of the Eastern or African route. Nor are there rocks detached from the reef off the N.E. angle of *Bonavista* of the *Cape Verd Islands*. Bad reckoning, &c., placed rocks where they were not, all of which were traced in the early pages of this journal to the reef of *Bonavista*. We said in our last that *Maury* had done much service to navigation, perhaps too much. English navigators would profit more by lighting the Eastern Channel on *Bonavista*, than the Western one on the *Rocas*, which channel really belongs to the patronage of the American navigators.

Cardiff, January 10th, 1866.

Your impression of the 8th inst. contains a letter recommending the westerly route for ships bound to the southward, and respecting which I beg to offer a few observations.

The writer has given his opinion as to which he conceives to be the quickest route across the Equator to the latitude of *Cape St. Roque*, and has endeavoured to support that opinion by annexing a tabulated statement to his letter; but unfortunately he has not extended the re-

sult of his observations beyond that point where the difficulties of a ship generally commence—namely, in or about the latitude of Cape St. Roque. He has indeed mentioned one instance where he passed “to leeward of Fernando Noronha in July, 1841, and had no difficulty in getting to the southward;” but in the following line he adds, “As a general rule, I would advise ships not to make so free with the Brazil coasts in the months of June, July, and August, *southerly* winds being common at that season.” Now I would put the question to any experienced seaman, and ask how it was possible for a ship to the westward of Fernando Noronha to get to the southward without any difficulty: and if the writer of the letter referred to had “no difficulty” in getting to the southward, why he should advise ships not to make so free with the Brazil coasts in these months.

The letter referred to would have been more perfect if there had also been annexed a table containing the particulars of the “previous voyages” when he crossed the “line” according to the old fashioned route.” If such a statement had been placed in juxtaposition with the other, we should have seen more clearly the respective merits of both routes: but as this is wanting we will take the writer’s statements as they stand. They appear as follows:—When he crossed the equator by the eastern route, the average passage of eleven voyages was 36·6 days from the Lizard to the line; but when he crossed the equator by the western route his average passage of eight voyages (according to the tabulated statement) was 34·7 days from the Lizard to the latitude of Cape St. Roque, thus causing a saving of 1·8 days between his passage to the equator crossed in about 20° W., and his passage to the latitude of Cape St. Roque, and in about the long. of 32 W.

Supposing these statements to be strictly correct, I feel assured that no prudent commander would prefer the last-mentioned position to the former, especially in the months of June, July and August; and I appeal to the experience of every experienced commander who has sailed along the coast of Brazil in these months, if from such a position the progress of a ship would not be seriously retarded in her passage to the southward, and her safety placed in absolute peril. The question to be solved therefore is not by which route is a ship likely to reach the latitude of Cape St. Roque the soonest, but by which route is a ship likely to reach the southern limit of the S.E. trademost quickly and with the greatest safety.

In Mr. Horsburgh’s *Directory* I have not found a single instance of a ship having passed to the eastward of Cape Verd Islands. A dangerous bank marked on all the old charts was then *supposed* to exist between those islands and the Coast of Africa. The writer of the letter referred to, appears to be totally ignorant of this passage being continually used by experienced commanders at the present time. This passage is *now* not near so “old fashioned as Maury’s,” and if the writer had adopted it when sailing on the eastward route, he would have found a constant, steady, S.E. Trade wind in this passage, while ships passing to the westward of the islands were not only sailing by a circuitous route, but were having light winds and calms to the lee-

ward of these islands ; and thus his eleven passages from the Lizard to the line would have been lessened from an average of 36·9 days to about 31·2 days, which, is nearly the average of my passages by this route *during the last sixteen years.*

The writer is extremely desirous, for obvious reasons, that a lighthouse should be placed on the Rocas. I beg to observe that there is a reef of rocks a short distance to the eastward of the Cape Verd Islands, on which more than one ship that has sailed by the eastern route has been wrecked, and as this extreme eastern route is becoming more frequented as it becomes better known, I think there is quite as much reason to place a light on the reef referred to, for the benefit of those commanders who might be foolish enough to sail too near it, as there would be to place a light on the Rocas ; which could not possibly be of any practical benefit to any ship proceeding to the southward, unless it was bound to Pernambuco, or the parts in its vicinity.

Permit me to state in conclusion, that my statements are not "mere opinions." I have tried the three different routes, and at different seasons of the year, and I conscientiously believe that in any month of the year *no ship can pursue the track recommended by Maury with advantage*, except in very rare instances, and that in the months of June, July and August, *his route is frequently attended with detention and sometimes with disaster, and I have no doubt whatever to these directions is mainly attributable the great loss which has so frequently taken place on the Rocas!*

The writer of the letter is quite right when he says "*Truth will prevail,*" but if I may judge from conversations which I have had on the subject with a great number of commanders, whose experience and respectability are quite equal to his own, I am disposed to believe that it will prevail in a manner that will greatly disappoint his expectations.

T. HEDGER.

THE MARINER'S COMPASS AGAIN !

In these days of steam and iron along with great circle sailing (whereby the shortest distance between two places is at once seen) it is no doubt easy enough, by means of tables in use to find at all times the course to steer. But valuable as such tables undoubtedly are and essential to the finished navigator, there has arisen of late years, by the extensive employment of iron in ships, an enemy to the accuracy with which such tables would enable a vessel to keep always on the line of the Great Circle. And this enemy has taken his concealed position in the very heart of the seaman's old and tried friend the compass. When seamen in former times had nothing but the variation of his compass to consider, this was easily allowed for, easily found, and they were satisfied, (to say nothing of a small amount of

local attraction, as it was formerly styled) they were satisfied to set down to the score of current any little difference that might be found from day to day between the position of the ship at noon by reckoning and that by observation. That difference was generally small and might be accounted for in steerage, drift, or as we have said current.

But ever changing time has introduced a fresh evil—unfortunately too a necessary evil, for evils may be looked on as of two kinds, viz., necessary and unnecessary. Our ships have become so essentially iron in their hulls and fittings, that the compass is no longer the tame domesticated creature it used to be. It has assumed a very formidable ship's variation, besides its old legitimate and intelligible one, to which all seamen were accustomed and could find and allow for readily enough. And this new ship's variation, the effect of the iron composing the ship and her fittings, is ever found to be of a chameleon kind, always changing as the direction of the ship's head, is altered; and besides that it is fitful and fanciful, not only changing with the direction of the ship's head but also differing in different hemispheres. And even more than this, even the amount of its varying with the age of the ship that is, it will decrease in its amount or intensity as the ship advances in years.

So serious an obstacle to correct navigation is at once not only a serious evil, but is actually a necessary one. The shipowner says he must have an iron ship and would be inexorable because an iron ship is economical. Nothing would move him to abandon iron as being the insidious enemy of the compass. Again, as to ships of the state! who, in the course of his plans and devices within a government office ever troubles his head about the compass?

Iron tillers, stanchions, funnels, and boats davits were bad enough as they gradually came. They all had their own tricks on the poor compass. But who cared for that, certainly not those who planned those necessary articles of a ship's furniture, although they might have a vague suspicion after all that the compass was quite as necessary for navigation as their wares were for the use of ships. However, these were mere toys, mere playthings to what we have now to contend with. Iron has indeed become not only the material for the construction of the ship, but being always those means of offence and defence employed by the ship of war, has become so tremendously exaggerated that employment of iron has surpassed all reasonable bounds, considering that after all her navigation must depend on her compass! It would not be easy to increase iron beyond its present amount in our ships of war. And, whatever may be the effect of all this on the compass, it is looked at with the same expectation as in former days when there was nothing of the kind, that it is equally expected to do its duty.

Well, be it so, it is an invaluable servant, one without which a ship cannot go to sea. Still it is surrounded by difficulties, assailed by forces that have no regard for the magnetic pole of our globe to which the compass owes its allegiance; in fact, the poor compass is fairly

bewildered, and not all the doctoring it has had performs a radical cure; it is "sick at heart," and must be relieved if we are still to navigate the ocean. Matters have arrived at their worst, the crisis has come, and something effectual still must be done to save the compass for the mariner's use.

But Columbus himself had the same difficulty in some degree, to contend with. It is to him we owe the discovery of the variation of the compass, and like him, we must refer for assistance to the heavenly bodies. He knew by the height of the pole star that he was in the latitude of his convent of La Rabida, when he was in the West Indies, and shaped his course accordingly across the Atlantic, and we must appeal to the sun to tell us the error of our compass, as he did, in the midst of far greater troubles by which it is assailed than he had to deal with. The heavenly bodies in fact, when we are out of sight of land, are our very last resort, and happily, when heavenly things are resorted to for assistance by mankind in his need, they never do deceive him! So wrote Young: "*Invisibilia non deceptiunt!*"

This leads us to the consideration of two ways of using the heavenly bodies for the correction of the compass—one is by means of the spherograph, and the other consists of the computed tables of the sun's true azimuth lying before us.

The readers of the *Nautical* will at least give us credit for being alive to the compass difficulty long ago. They will remember Mr. Saxby the inventor of the spherograph proclaiming it, and especially his long paper in our last volume, wherein he showed it had been used with success. And they will also perhaps, remember our notice in vol. for 1864, p. 557, of tables of the sun's azimuth by Staff Commander Burdwood, the continuation of which has just been published.

Now we are not deciding which should be preferred of these two methods of finding the sun's azimuth. Such does not belong to us. And the navigator knows as well as we do which is easier to do, to use such tables with time at the ship, and to take out the azimuth from them, or to obtain the azimuth by Mr. Saxby's spherograph. We say that the choice of either method or the adoption of both is left by us entirely to him. But it is not difficult to foresee that one of them will become the favourite hereafter and it will undoubtedly be that which will give the best result after employing the easiest means of arriving at it—a custom which generally settles all such matters.

Whichever that may be, it is now our business to record an extension of the tables of Staff Commander Burdwood of the navy, in their progress towards embracing the whole range of the globe from the equator to the parallel of 56° N. & S. In our volume for 1864, p. 557, we noticed the appearance of the first instalment of these valuable tables. We may now announce the appearance of those for three more degrees of latitude to be added to them, thus completing the range from 56° to 43° N. or S. This collection includes a large navigable tract of the globe, but only a small portion of what is yet

to be done. And even in our own immediate parts it only includes the navigation to the St. Lawrence and the shores of Nova Scotia. But when it is considered that it extends to the same range of South latitude it cannot be denied that a large and very important space of navigation is completed. With this in the possession of the captain of any ship he has got what we might call the "whip hand" of his compass. It may take any fancies it pleases, may point in any direction to which iron may attract it, but at any time when the sun is up and its bearing may be had, the truth or error of that bearing is at once determined by these tables, and the whole error, including variation and deviation may be allowed for accordingly—all in fact that the seaman wants to know.

Now in the case when the sun is not visible, as so often occurs, the seaman must do as best he can. He might get the pole star or others at night, or he may have gone over the same ground; or he may be able to infer, from some previous observations, what actual compass correction he has to allow—but with these tables as far as they go and as far as weather allows, the compass need no longer deceive him.

It is assumed by their author that the time at the ship is always known, and she must indeed be a badly regulated craft where it is not. The chronometer should always give it with the reckoning approximately until the morning sights are taken for time, as usual in every ship now. By Lynn's tables, which are very well known, the sun's altitude was required to be taken for the observation as well as the bearing. The advantage of these before us will be seen at once to consist in doing away with the necessity of always observing the sun's altitude when his true bearing is required, when also the time can be more easily commanded. For instance, a glimpse of the sun may give the compass bearing and the time known when his altitude could not be measured on account of the clouds or rain obscuring it. The facility of thus getting the compass error is so great that it is fair to illustrate it by the example given. Here is the example:—

March 2nd, 1864, in lat. 49° N., long. 10° W. (head East) ship time 8h. 12m. a.m., sun's bearing by compass was S. 44° $\frac{1}{2}$ E., or N. 185° $\frac{1}{2}$ E., what was its error. Now by the tables—

The sun's true bearing was	. . . . .	N. $190^{\circ} 22'$ E.
The sun's bearing by compass	. . . . .	N. $135^{\circ} 30'$ E.
Variation obtained is then	. . . . .	15 8 W.
But a variation chart gives	. . . . .	25 0 W.
And the deviation or error	. . . . .	9 52 E.

So that the ships time being always known merely a bearing of the sun is all that is necessary with the latitude.

We may also add that the time in the tables is taken at every

four minutes to which the azimuths under their respective latitudes are calculated for the sun's centre.

We shall therefore look anxiously for the completion of these tables, and consider in these days of iron and sadly erroneous compasses that they are actually essential to the safe navigation of every ship on the ocean.

While on this subject, we have received a letter respecting the compass in iron ships, that will not be out of place here. It runs thus:—

Trieste, Dec. 22nd, 1865.

“Sir,—In your paper of the 9th inst. I read an account of the stranding of the *Hector* steamer upon the Codling Bank, and that the Court came to the conclusion—‘The accident must, therefore, have risen either from a fault in the compasses, or what was stated by the witnesses was false,’ &c.

“Now, Sir, permit me to inform you that the steamship under my command has the same sort of error in her compasses which caused the stranding of the *Hector*. I am obliged to steer down Channel S.S.W. by compass, which course takes me from ten to twelve miles outside the Tuskar; and this voyage, coming down Channel in the gales of the 21st to the 23rd of November, I got over on the Irish shore, although I was steering S.W.b S. $\frac{1}{2}$ S. (I allowed the half point for the heavy N.W. gale). These steamers carry large quantities of iron as cargo. I believe it has a great tendency to affect the compasses, for during my experience of ten years, in seven iron steamships, I never found one of their compasses to agree with the deviation cards. After proceeding to sea, I have seen some most erroneous, with the corrections noted the wrong way; therefore I never trust to deviation cards; but, on my passage from Liverpool, I always bring the Skerries Light and South Stack Light in one, and put the ship's head in that bearing, which gives me the error for the S.W. $\frac{1}{4}$ W. course down Channel.

“I have been Chief Officer with many Commanders in steamers. I have never seen any of them try their compasses by the above-mentioned lights. It would greatly relieve the anxiety if masters, on their first voyage in iron ships going down St. George's Channel, proved their compasses for the Channel course by this method. I have an opinion that iron ships, as they get older, lose their magnetic influence on compasses, and that they would be as well navigated without all the magnetic bars that are placed round the compasses corrected in dock. We steer this ship amidsthips. I have tried the experiment on the after compass by taking the magnetic bars (or compensating bars) away. I find it is much more correct.

“It is a pleasure to read that the Captains of the *Duncan Dunbar* and *Hector* have had their certificates restored, for masters and officers are all of opinion that justice is not always awarded by these official

inquiries. I always remark, that in these inquiries we never read a word about deviation applied to the courses in question, or the so-called deviation card asked for.

“MASTER IN THE LIVERPOOL AND MEDITERRANEAN
“STEAMSHIP COMPANY.

“*To the Editor of Mitchell's Maritime Register.*”

Now we may safely conclude, first, that this is the letter of a practical seaman, commanding an iron ship from Liverpool to the Mediterranean, who evinces shrewd intelligence on the subject of his faulty compass. He admits the effect of the “large quantities of iron” which he is obliged to carry, and gives his opinion on the “deviation cards,” which ships obtain at *Liverpool!* In fact, they are of no use, never trusted, and as to the iron bars in this Liverpool ship, they are dispensed with, and the compass is more correct without them.

In fact, on his way down St. George's Channel he gets the Skerries and South Stack lights in one, and puts the ship's head on that bearing, by which he gets his course down the Channel. Now this is a sensible proceeding, and if he were to put his ship's head on a few more points of the compass with those two lights still in one, he would have his deviation on each of those points; and well he may throw overboard the bars of iron and the cards of the Liverpool compass doctors!

How thoroughly this gentleman has verified the complaint of the compass that appeared in our last December number, in saying—

“From Britain's shore, from pole to pole I roam,
Flound'ring abroad, and sick in heart at home;
The compass doctor says he sees my plight,
Brings antagonist magnets into fight;
Checks my wide rambles, says that I'm all right!
Prescribes my cure in tables neat and clear,
But useless in the other hemisphere!”

These antagonistic magnetic bars of iron, cards and all, are here found useless long before the ship would get to “another hemisphere,” and away they all go—overboard or out of the way, for the compass is found to be “better without them. There is no doubt of it, and when our good friend Mr. Burdwood has got his tables fairly out accompanied by a good variation chart, we shall expect to hear of the compass being let alone, and that every captain of a ship will have a decent going watch in his possession, with which, and Burdwood's tables, he will have the whip hand of his compass.

We trust our friend, the Liverpool captain, will have seen by this time the remarks of the Board of Trade on the report which he has so much extolled on the loss of the *Duncan Dunbar*. If not he will find them in our present number.

THE RECENT GALES AND THEIR EFFECTS.

Misfortunes from the inclemency and severity of the weather have come thick and fast upon us. The new year of grace, 1866, will be celebrated in history by the effects of maritime disasters almost as unprecedented as the weather which has produced them. For after all the weather has to bear a large portion of the blame, although there is another, and that not a small portion that must be attributed to ourselves—yes, we fear even ourselves. But let us go into matters a little, for our space forbids our being lengthy; and we shall see whether there is not some truth in what we have here advanced.

In the early days of January a severe conflict of winds took place. The easterly breezes, strong enough when they assert their right to preeminence in these our British islands, scatter wreck and destruction on those shores to which our eastern coasts, and even the eastern shores of our promontories are exposed. Nor are our own soft delicious health-giving westerly breezes to be held in slight appreciation when they are roused to their full energies by those from the East; and as for the gentle south, with its misty driving showers, there is a softness about it that the bleak cold violent North soon overcomes, that will convert all its warm vapours, and any amount of its well-known moisture into hail and driving snow. All this we have experienced in the early days of this January, to say nothing of the same kind that had been going forward in December, both winter months, but more remarkable for their high temperature this year than they used to be in former days, for the cold weather which they used to bring us.

Now as we are really islanders, although our territory is tolerably extensive, when either of these winds fly into an angry mood, asserting its right to prevail by sheer might and main strength, there is generally a portion of our coasts on which it blows dead on, or as seamen have it, makes it a lee shore that does not fail to show up a corresponding amount of disaster by wreck. And why so? it may be asked, can we not be prepared for such visitations. Are not our seamen up to their work? Have they not tight craft, well found and taking care of themselves in such weather? It is one thing to ask a question; but quite another thing to answer. A question may be asked in three words, but to answer it some would require dozens, aye hundreds perhaps, when a variety of collateral conditions or circumstances are at hand necessarily to qualify answers. In answer to our first question we should reply, Doubtless our seamen are well up to their work; they can handle their craft, and sometimes as it is said, can do anything with them, as British seamen are wont to do, when it is really required of them. But our second question is not so easily answered; at all events the affirmative "yes," will not apply to all, and then come a host of contingent conditions which to explain requires as a noble lord said the other day, the airing of one's vocabulary. To such as really would desire an answer, and as the

category of wreck would be implied as the fate of such vessels, the reader will find a collection of different circumstances which might be briefly tacked to the other monosyllable "no" that would perhaps account for why they are not tight craft and came to grief.

However, the extraordinary gales to which we have alluded have terminated fatally to a large number of the shipping of our merchants on all parts of our coast. The eastern and southern seem to have been the scenes of wreck of probably not far from a hundred ships of various sizes, and were we to state the loss of life at a similar number it would perhaps be no exaggeration. And as usual our lifeboats have been as active as ever; those of the Royal National Institution most successfully in all the cases where they were present, taking off the wrecks many valuable seamen. That oracle of these matters the *Shipping Gazette* declares that the numbers of wrecks reported last week amounted to ninety-six, and that those that have occurred since the 1st of January is extended to the enormous number of 264. Sad havoc this in the mercantile ranks of our maritime resource.

Of our own shores those of Torbay claim the melancholy preeminence. The account from thence given in the *Western Morning News* says, "A calamitous storm unexampled in some of its features, and equal in severity to any gale which has desolated the coast during the present century, broke yesterday over the West of England. The wind freshened soon after dark on Wednesday (10th January), blowing from S.E., veering then to E.S.E., about which point about 1 a.m. (11th), the gale was at its height, veering to the N.E., and occasionally nearing North, and settling down towards daylight at East. This was accompanied by blinding showers of rain, hail, and snow, alternately, and on and around Dartmoor, and in many parts of Cornwall the snow accumulated several feet in depth. The combined action of the snow and wind had the effect to a great extent of isolating each town in a manner which recalled old coaching days, when railways and telegraphs were unknown." Miles of railway and telegraph wire became unserviceable, the former buried in snow, and the latter torn down by the wind with broken posts all lying in endless confusion.

On the sea, however, matters were far worse. Of about sixty sail of merchant vessels anchored in Torbay, there were but ten left the next afternoon, the shores of Brixham presenting a mass of shipping hurled upon each, in such a fearful confusion that had never before been witnessed. A hundred lives are considered to have been thus lost with those of vessels which foundered in the bay. It was a calamity which will long be remembered, and to which we shall ourselves have again to refer. But our space now must be devoted to another even greater, that comes to us from the sea in the South. The piercing shriek of despair, the suppressed bitterness and manly calmness with which 220 individuals have perished in the depths of the ocean, come to us with a fearful reality, claiming all our sympathy. The loss of the Australian passenger steam ship *London* is a result of this gale that sends sorrow home to many a heart. Friends and relations have been torn from each other to a sad extent.

The account of her loss says that her passage down channel as far as Plymouth, at which place she called for passengers, was a continued series of disasters.

The London came to an anchorage inside the breakwater at 1 p.m. on the 4th inst., and during the afternoon took on board those of her first and second class passengers who had arranged to join the ship at Plymouth. At midnight on Friday she proceeded on her voyage, the weather being at that time calm with a light wind ahead. She had full steam on during the whole of Saturday, and the voyage promised to progress very satisfactorily until Sunday morning, when the wind increased and a head sea gradually rose. During the day the *London* passed several ships, and nothing occurred to create the smallest uneasiness in the minds of any of the officers of the ship. During Sunday night the wind increased to a gale, and the sea rose considerably. On the morning of Monday, the 8th instant, the ship was well clear of the land, and Captain Martin having ordered the engines to be stopped set his topsails, and so endeavoured to keep the ship moving slowly ahead. At noon on this day, the wind having somewhat lulled, the engines were again set in motion and kept steaming slowly ahead through the night. At 8 a.m. on Tuesday, the 9th inst., while the captain was still endeavouring to keep the ship in her course by means of the screw, the violence of the gale carried away at one sweep the jib-boom, the foretopmast, the topgallant mast, and the royal mast. These large spars were not wholly detached from the ship, but hanging fast by the stays swung to and fro with such violence that the crew were wholly unable to secure them. About two hours latter the main royal mast was blown completely out of its socket, and added to the general wreck.

Captain Martin, who had not been in bed since the previous Sunday night, was not at all disheartened up to this moment, but as the gale continued to increase during the morning, with a sea already running mountains high, the position of the ship was undoubtedly felt to be one of some peril. Still, as the wind had somewhat veered round, the engines were kept steaming easy ahead; indeed it is believed that at this moment no person on board felt any anxiety for the ultimate safety of the ship. About 3 p.m. on Tuesday, a tremendous sea struck the ship, and carried the port lifeboat clean away from the davits. All that evening, and through the succeeding night, the wind blew a very heavy gale, and the sea ran very high, but the screw was still kept steaming easy ahead. At 3 a.m. on Wednesday, the 10th instant, Captain Martin sent for Mr. Greenhill, the chief engineer, and informed him of his intention to put the ship about and run for Plymouth, and he desired that full speed should be got up directly. This was immediately done. In half an hour after the ship's course had been altered she was again struck by a tremendous sea which carried away the starboard lifeboats, and the same sea stove in the starboard cutter. At noon on this day the ship's position was in lat. $46^{\circ} 48' N.$, long. $8^{\circ} 7' W.$ A very heavy cross sea was running with the wind now dead astern of the ship, which caused her to roll heavily and much.

impeded her progress. But no danger was even now anticipated, and all through the evening of Wednesday and long after nightfall the ship continued to steam slowly ahead, the captain and his officers remaining steadily at their posts, and the passengers appearing to have full reliance upon the skill of Captain Martin to bring them safely to port.

At 10h. 30m. p.m. on Wednesday, the ship still rolling deeply in a heavy cross sea, and the wind blowing a whole gale from the S.W., a mountain of water fell heavily over the waist of the ship, and spent its destructive force upon the main hatchway over the engine-room, completely demolishing this massive structure, measuring twelve feet by eight feet, and flooding with tons of water this portion of the ship. Instant endeavours to repair the hatchway were made with a promptitude and vigour commensurate with the imminent crisis. Every spare sail that could be got at, and even blankets and mattresses from all parts of the ship, were thrown over the aperture, but each succeeding sea shipped by the vessel tore away the frail resources of the moment, and not more than ten minutes after the hatchway had been destroyed, the water had risen above the furnaces and up to the waist of the engineers and firemen employed in this part of the ship. The lower decks were also now flooded with the rush of waters the ship was continually taking in. The chief engineer remained at his post until the water had risen above his waist, when he went on deck and reported that his fires were out and his engines rendered useless. Captain Martin, with calm conviction, remarked that he was not surprised; on the contrary, he had expected such a result.

Finding his noble ship at length little more than a log on the water, Captain Martin immediately ordered his maintopsail to be set, in the hope of keeping her before the wind. This difficult work had scarcely been accomplished when the force of the wind tore the sail into ribands, with the exception of one corner, under which the ship lay to throughout the remainder of the night. The donkey engine, supplied with steam by a boiler upon deck, and all the deck pumps were kept going throughout the night, and the passengers of all classes, now aroused to a sense of their imminent danger, shared with the crew their arduous labours. Notwithstanding every effort the water still gained upon the pumps, and the gale continuing at its height, cross seas with tremendous force were constantly breaking over the vessel, which at length succumbed to the unequal conflict. From this moment the motion of the ship was low and heavy, and she refused to rise to the action of the waves. At a quarter after four o'clock on Thursday morning she was struck by a stern sea, which carried away four of her stern ports, and admitted a flood of water through the breach.

From this time all efforts were useless, and at daybreak Captain Martin, whose cool intrepidity had never for a moment forsaken him, entered the cuddy where all classes of the passengers had now taken refuge, and, responding to an universal appeal, calmly announced the cessation of all human hope. It is a remarkable fact that this solemn admission was as solemnly received—a resigned silence prevailing

throughout the assembly, broken only at brief intervals by the well-timed and appropriate exhortations of the Rev. Mr. Draper, whose spiritual services had been incessant during the previous twenty-four hours. At ten o'clock, the ship still rolling deeply, an attempt was made to launch the starboard pinnace, but a sea struck her just as she reached the water, and she sank, leaving a crew of five men struggling for their lives. As the ship was lying to, three of them managed to scramble up the sides of the ship, and the other two were rescued by ropes being thrown to them. After this the exhausted crew appeared indifferent to their fate, and no further effort at launching the remaining boats was made until one o'clock, when the water having reached the main chains and the ship evidently settling down, the port pinnace was got over the ship's side. Even at this moment the sea was so heavy that those of the passengers who were within reach of the boat, appeared to prefer the frail shelter of the sinking vessel to the obvious dangers of a small boat in a raging sea. At this crisis Captain Martin, always at hand, addressing Mr. Greenhill, his chief engineer, under whose command this particular boat was rated, said, "There is not much chance in the boat. There is none for the ship. Your duty is done. Mine is to remain here. Get in and take the command of the few it will hold." Thus prompted, Mr. Greenhill, with his fellow engineers and some few others, numbering only nineteen souls, among whom were only three second-class passengers, quitted the ship—with only a few biscuits in the shape of provisions, and not a drop of water. The pinnace had scarcely cleared the wake of the vessel, upon the poop of which upwards of fifty of the passengers were seen grouped, when a tremendous sea was seen to break over the doomed circle, who, when the ship rose slowly again, were discovered to have been swept into the surging waters. Another moment, and the vessel herself, settling down stern foremost, threw up her bows into the air, and sank beneath the waves.

The pinnace, having no sails on board, could only keep afloat before the wind, and was repeatedly in danger of swamping. They had not been afloat two hours before they saw a full-rigged ship sail past them, but at too great a distance for hail. At 3h. a.m. on Friday they sighted the sails of a brig, the crew of which overheard their shouts and bore down towards them, but failing to get into the track of the boat, after making several fruitless tacks, she bore away. At day-break a full-rigged cutter was observed, at some distance, and hoisting a shirt upon an oar, they endeavoured, but in vain, to attract attention. Shortly afterwards the Italian barque *Adrianople*, Captain Cavassa, bound with a cargo of wheat from Constantinople to Cork, hove in sight, and the captain, having observed the pinnace, immediately shortened sail and lay to, preparing to take them on board. On reaching the ship, notwithstanding the stress of weather and straitened means for the support of so large an increase to his crew, Captain Cavassa received the Englishmen with unbounded kindness and hospitality, supplying them with all that was needful in their destitute condition. The exigencies of the gale had obliged Captain Cavassa

to sacrifice more than half his cargo, and during the four day's run into Falmouth the weather carried away his rudder, and brought into useful requisition the services of his English passengers.

And thus were providentially saved nineteen souls of the unfortunate *London* to relate the disaster by which upwards of 220 left on board with Captain Martin sunk with the ship.

So appalling a disaster as a ship of 1,700 tons foundering from mere stress of weather is an event that could not but produce some comment as to her condition and of the circumstances of the case. Something worth consideration appears in the *Mechanics Magazine* that must be added to the foregoing :

“We hope the chief engineer will be able to explain his escape. It would not be just to him to do more at present than to remark that the fact itself calls for a justification. *Prima facie*, the foundering of a vessel at sea points to one of two alternatives—either that the ship was unseaworthy, or that the seamanship of her master was at fault. The somewhat meagre account published in the daily papers probably contains nearly all that we shall ever know with accuracy; and while, on the one hand, it does not enable us to distinguish accurately between these two causes of loss, it raises, on the other, a strong impression that both had their share in the effect. That the vessel was allowed to ship heavy seas, and to be afterwards pooped with fatal effect, is a fault of which the blame must lie between her designer and her navigator. A ship can be built so as to be dry and safe when in good hands, and there is no lack of master mariners in the merchant navy of this country who would not allow any seaworthy vessel to come to harm in the open sea, let the wind blow as it might. There are not wanting indications that all was not right in the structure of the vessel. The defects which we have in view in this remark are unfortunately so common that we cannot charge any owner with serious blame for the past; but the fact is, that very few large vessels are seaworthy when considered with reference to their deck fittings and the construction of their stern. There is no real difficulty in building a ship which could receive the blow of a wave on her stern without getting her sternports driven in, and which could have her deck washed fore and aft without her engine-room hatch being irreparably crushed in, so as both to deprive her of steam power and render her sinking a mere question of time. But yet it is a fact that very few large vessels (ships of war excepted) can safely receive a heavy sea on board, and while it is undoubtedly bad seamanship, as a general rule, to let them do it, yet there may be, and frequently are, circumstances under which no human skill can save them from it. If there were a difficulty in devising means of making the deck safe, there might be some real reason for neglecting the precaution. As matter of fact, the neglect is quite gratuitous. The destruction of the engine-room hatch occurred before the vessel was seriously crippled; until that accident she had still her engine power, her main and mizen masts complete, and her (lower) foremast and bowsprit standing. After this mishap, it is perhaps not surprising that she was pooped. But why were not her

engine-hatch and her sternports strong enough to stand the sea? We fear that this question ought to be asked about many more unfortunate ships.

"We trust that this disaster will call public attention strongly to this defective point in modern naval architecture. The deck arrangements of many of our passenger steamers are simply absurd—as little fit for sea as a slated roof—and giving far more hold to the wind. We could at this moment point to passenger steamers crossing seas open to the Atlantic, whose deck fittings in a head wind offer as much resistance to their speed as a clean-built vessel would get by having a square sail aback. Of course these are not first-class ships like the *London*; yet by some miracle of seamanship, they are still afloat."

As to the escape of the chief engineer, Captain Martin (whose whole behaviour is beyond all praise), directed him to take charge of the boat, as appears in the narrative. But what we have to do with is the state of the ship. Now if the remarks that were made at Plymouth about her being too deep in the water be true, and that fifty tons of coal were on her deck, the whole circumstances as they appear in the narrative with the foregoing trite remarks of the *Mechanics' Magazine*, point to the suspicion that the *London* in such a condition should not have been permitted even to go to sea at all! She was too deep in the water! She had, it is said, 1,200 tons of iron on board. How this was stowed does not appear. But in the sea to which she was exposed, an overweight collected in one part, without being distributed throughout, with her being lower than she should be, would prevent her from being lively and buoyant; and this would account for such uneasiness, as by sudden and violent motion to occasion the loss of her foretopmast, steaming, as she seems to have been, head to the sea.

The remarks of the *Mechanics' Magazine* above quoted in respect of deck fittings of our merchant ships in general, are very serious, as the want of them had much to do with the catastrophe which followed the *London*. Her engine-room hatch was washed away. What is the meaning of this? Does it mean that a mere fabric of wood was all that had been prepared to defend that hatch-way of the engine-room from water in case of a misfortune, such as that fabric being washed away as it really was. Were there no such things as gratings fitted to that hatch in case of the accident to cover the hatchway, and these again by a tarpaulin to be nailed down under batons over all? Nothing is said of any such preparations for disaster in the *London*, but we hear that *blankets!* and *sails!* were uselessly thrown over the aperture! This is not as it should be. Where would our ships of war be when overtaken by such a gale as the *London's* if every hatch had not its grating and tarpaulin, in order that when battened down to defy the possibility of water penetrating below from the upper deck. But not so with the unfortunate *London*; not a word is said about battening down the upper hatches, and making the whole face of the upper deck such as the sea may wash over without the least harm to the ship. We have nothing of these in the poor *London*; but it seems that all the water she collected which filled her below and flooded her

engine-room, really came from above or the upper deck and the stern-ports. We hear nothing even of a leak.

In such a condition as the *London* seems to have been when she bore up for England this appears to have been a fatal resolve. She was sure of being overrun by the sea, as she was about half-an-hour afterwards. Surely she would have had a better chance of weathering the gale had she been quietly lying to with her head either way under her storm staysails, falling off and coming up as she might have done with helm alee as usual; and surely had she done this from the first when she had plenty of sea room with her *top gallant masts on deck*, she would have had a better chance of weathering the gale than when she was least fit for it, to bear up and run before it, after straining herself for days against it, the sea running on board of her, and as if this was not enough washing in her stern ports. We are not attributing blame any where, but we believe that the *London* fell a sacrifice to custom, and even had her decks been battened down as above mentioned, and a snug ship made of her aloft, even had she been badly stowed, had she abstained from bearing up in her sad condition, and kept moozling the sea with either bow, as our ancestors of old used to do, we believe that she would now have been on her way to Sydney!

ROYAL NATIONAL LIFE-BOAT INSTITUTION.

On Thursday, 4th of January, a meeting of this institution was held 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., George Lyall, Esq., Colonel Palmer, W. H. Harton, Esq., Captain Ward, R.N., inspector of lifeboats to the institution; and Richard Lewis, Esq., the secretary. The minutes of the previous meeting were read.

The committee expressed their deep sympathy with the two poor widows and five orphans of the poor men who perished by the capsizing of the *Lizard* lifeboat during a hurricane on January 2nd, and voted £100 in aid of the local fund now raising for them. The lifeboat, it appears, was completely wrecked on the rocks, and a new lifeboat was ordered to be sent off by the institution to replace it in a few days. In a large fleet of 153 lifeboats, casualties must, it is feared, be occasionally expected. It is, however, gratifying to know that they are unusually rare—three only, including the *Lizard* one, having occurred in three years, with the loss of six lives—and that the lifeboats of the institution during that period had been manned on occasions of service and exercised by upwards of 18,000 persons.

Rewards amounting to £130 were granted to the following lifeboats of the institution for saving life from shipwreck during the recent gales. The *Albert Edward* lifeboat, presented by the City of Bristol

to the institution, and stationed at Padstow, rescued under most difficult circumstances the crew of seventeen men, of the barque *Juliet*, of Greenock, which was wrecked off Padstow during a strong gale from W.S.W., on the 29th December. This lifeboat is named after H.R.H. the Prince of Wales, in accordance with the desire of the citizens of Bristol. The third service clasp was voted also to Mr. Daniel Shea, chief officer of the coast guard at Padstow, and the silver medal of the institution to Mr. Wm. Hills, the coxswain of the lifeboat at Padstow, in recognition of their brave services in the lifeboat on this and previous occasions. A letter was read from General Knollys expressing the great satisfaction of H.R.H. the Prince of Wales at this valuable lifeboat service.

The Arundel Venables lifeboat of the institution, stationed at Arklow, Ireland, rescued thirty-four men belonging to the ship *Tenesseerian*, of Liverpool, which was wrecked on Arklow Bank during a gale of wind from North, on the 25th of December. This was another very meritorious case, as the sailors were taken off the rigging in a very exhausted state. The silver medal of the institution was also granted to Peter Kavanagh, the coxswain of the Arklow lifeboat, for his general brave services in the lifeboat in cases of shipwreck.

The Wexford lifeboat saved four men from the steamer *Barbadian*, of Liverpool, which was wrecked on the Blackwater Bank during a S.S.E. gale and heavy sea; this was likewise a most gallant service. The lifeboat, owing to the violence of the waves, was repulsed five times in succession, and the sailors when taken off were in a very exhausted condition.

The *Providence* lifeboat, stationed at Dungeness, rescued the crew of six men and a boy from a French vessel called the *Dieu Protège Alexandre et Lieu*, of Dieppe, which was wrecked off Dungeness during a gale from the S.W. on the 31st of December. The lifeboat was reported to have behaved remarkably well on the occasion. While returning from the wreck with the shipwrecked crew, she was struck by three heavy seas, which filled her twice, at the same time washing the French boy overboard; the lifeboat's crew, however, succeeded in reaching him, and dragging him again into the boat.

The Tyrella lifeboat saved the crew of five men of the schooner *Daniel O'Connell*, of Arklow. The People's Journal lifeboat, stationed at Peterhead, rescued one man from the schooner *Wilhelmina*, of Veendam. The Newbiggin lifeboat rescued the crew of nine men of the brigantine *Neptune*, of Delaware, United States. And the Hauxley lifeboat saved four men from the schooner *Tom Cringle*, of Thurso.

It was also reported that the Ramsgate lifeboat had, in conjunction with the steam tug *Aid*, rescued, under very perilous circumstances, the crew of seven men from the Dutch brig *Zeeploeg*, of Hoogez, which was wrecked on the Goodwin Sands during a gale from E.N.E. and heavy swell on the 15th of December. The same lifeboat also went off on the 30th of December, and succeeded, after much difficulty, in saving the crew of sixteen men of the barque *Norma*, of Bre-

men, which had also struck on the Goodwin Sands during a fresh breeze from S.W. to West.

It appears that during the past year the lifeboats of the institution have altogether saved 532 lives, besides bringing twenty vessels into port. In addition to this it has granted rewards, amounting to £120 10s., to the crews of shore boats and others for rescuing 182 persons during the same period, thus making a grand total of 714 lives saved during the past year through the instrumentality of the National Lifeboat Institution.

Rewards amounting to £89 were also voted to pay the expence of the lifeboats of the institution stationed at Broughty Ferry, St. Andrews, Fraserburgh, Whitburn, Ballycotton, Wicklow, Tynemouth, Lytham, and Southport, for putting off to render assistance to vessels in distress, or for going out in reply to signals of distress from different vessels, which, however, had afterwards got out of danger.

Various other rewards were also granted to the crews of shore boats and others for saving many lives lately from different wrecks on our coast.

During the past month the institution had sent new lifeboats to Courtown, on the Irish coast, and to Arbroath, on the Scotch coast. Two lifeboats were also about to be sent away to Hauxley and Newbiggin, Northumberland, a free conveyance having been promised to the boats by the Great Northern and North Eastern Railway Companies.

A lady had munificently presented to the institution the cost of the Worthing lifeboat establishment. The late Captain John Sykes, R.N., had left the society a legacy of £100 free of duty.

The demands on the institution continue to be very heavy. The society has a large number of new lifeboat establishments in course of formation, which will involve a considerable outlay on the institution.

The accounts of the institution for the past year were ordered to be sent to Mr. Begbie, the public accountant, who had been the auditor of the society for the past fourteen years.

Payments amounting to £2,000 were ordered to be made on various lifeboat establishments.

A cordial vote of thanks having been given to Mr. Chapman and Sir E. Perrott for their able conduct in the chair at the meetings of the institution, the proceedings terminated.

THE LOSS OF H.M.S. "BULLDOG."

On the 22nd of October the *Jamaica* packet was fired into by the rebel steamer *Valorogue*, off Acul. The British steamer *Bulldog*, being near by, approached her and inquired the cause, when it was explained by the captain of the *Jamaica* packet. The *Bulldog* said

that unless the *Valorogue* would cease firing into the *Jamaica* packet she would be sunk. She desisted, and went in at the Cape. Salnave, on learning of the incident, ordered that all who had taken refuge in the British Consulate should be taken away by force. The next day the *Bulldog* demanded satisfaction, and, it being refused, the captain began to shell Fort Cirolet, and also sank the *Valorogue* and an armed schooner, the powder magazine of the rebels was blown up, and fire was set to the town through the brisk fire kept up by the *Bulldog* from 9h. a.m. to 11h. 30m. a.m. The *Bulldog*, in manœuvring, got on a reef, and as she could not be got off, she was fired by her commander rather than see her fall into possession of the rebels.

President Geffrard, on hearing this, placed the steamer *22nd of December* at the disposal of the captain of the *Bulldog*. The crew and officers of that steamer were conveyed on board of the *22nd of December*. The loss sustained by the rebels is very heavy. That of the English amounts to two or three killed and about ten wounded.

At the court-martial assembled at Plymouth to try Captain Wake for the loss of the *Bulldog*, the court being two hours in deliberation after all the evidence had been delivered, then pronounced its opinion by the Judge Advocate, which was that negligence was shown on the part of Captain Wake and Mr. Behenna the acting master, in running the *Bulldog* ashore, by allowing her to run within the marks laid out on the chart. The court was also of opinion that sufficient exertions were subsequently not made to get the ship off; also that the ship was prematurely destroyed. Captain Wake was therefore dismissed the ship, and severely reprimanded, and Mr. Behenna was reprimanded. The court were also of opinion that Lieutenant J. L. Way and Lieutenant F. Rougemont had committed errors of judgement in agreeing in counselling with the captain to destroy the ship. The court could not however separate after excepting the above officers, without expressing its full approbation of the very satisfactory conduct of the other officers and the crew under such disadvantageous circumstances.

THE "SAPHIRE" AND THE "FANNY BUCK."—*Collision in Dover Strait.*
Decision.

The narrative of Captain J. W. Bennet, the Commander of the R.M.S. packet *Samphire*, in her collision with American barque *Fanny Buck*, is unhappily too long for our pages in this number. But we preserve here the result of the Board of Trade inquiry into it, and which after eleven days of lengthened investigation was thus delivered by the Mayor of Dover :—

"After a most careful and anxious consideration of the voluminous and contradictory evidence taken in this inquiry, we have come to the conclusion that the captain of the *Samphire*, who was wholly responsible for the conduct and management of his vessel, is culpable of having driven his vessel at so great a speed across one of the most frequented

and narrow seas in the world on so dark and hazy a night as that of the 13th of December. The attendant circumstances, however, are such, and the default of the barque in not properly exhibiting a sufficient light from the lamps having to some extent contributed to the damage and loss of life, we do not think we should be justified in awarding so severe a sentence as either the deprivation or the suspension of his certificate. The circumstances to which we allude, and which we think it right now to mention, without waiting for the publication of our report, are:—

“1. The provisions of the contract for carrying the mails, which holds out a direct premium for quick passages in all weathers; and the natural desire of the Captain to gain the premium and avoid the penalty on behalf of his employers.

“2. The great moral pressure put upon both the owners and commanders of the vessels by the public, who require the utmost despatch to be used in the transmission of these mails, and the desire of the passengers frequenting the route for quick passages—a desire which can only be gratified, in cases like the present, by the neglect of some of those precautions which we think indispensable for safety.

“The great interest evinced by the public in these proceedings has induced us in thus announcing our decision to go further into detail than we should otherwise have considered it incumbent on us. The various other questions arising on this inquiry as to the conduct of the crew of the *Samphire* after the collision, and other matters, will be more fully entered into in our detailed report to the Board of Trade.

“The Mayor (then addressing Captain Bennett): ‘The court has great pleasure in handing back your certificate, and at the same time testifying to your laudable exertions in endeavouring to save life after the collision.’

“An outburst of applause from the assembly in court greeted the announcement of the decision.

“Mr. O’Dowd, on the part of the Board of Trade, tendered his thanks to the Mayor and his brother magistrates for the patience and ability exhibited by them during this inquiry; also for the valuable assistance rendered by the nautical assessors and for the courtesy displayed by the several advocates who appeared in the case.

GREENWICH MEAN TIME.—Captains of ships and others engaged in navigation are generally anxious with respect to obtaining the accurate Greenwich mean time. The following notice with respect to this subject was yesterday issued by Professor Airy, the Astronomer Royal:—
 “Time Ball—Royal Signal Tower, Deal—The ball will be raised half-mast high at a few minutes before one, nearly, and will be raised at the top three minutes before one nearly every day. It will be dropped by an instantaneous galvanic current from the Royal Observatory, Greenwich, exactly at one. The time to be noted is the instant at

which the ball begins to fall from the cross arms of the vane. If, in consequence of galvanic accident, the ball is dropped too late or too soon, a black flag will be hoisted, and will be raised till fifteen minutes before two; the ball will again be dropped by hand at two. If the wind is very heavy the ball will not be raised. (Signed) G. B. AIRY, Astronomer Royal."

Nautical Notices.

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

PARTICULARS OF LIGHTS RECENTLY ESTABLISHED.

(Continued from vol. xxxiv. page 685.)

Name.	Place.	Position.	F. or R.	Ht. in Feet	Dist in Miles.	Remarks &c. Bearings Magnetic.]
66. Macao	Fort Gula	22° 13' N. 118° 33' 5" E.	R.	330	20	Est. ?
69. Spithead	Wreck buoy Fairway	.....	..	..	..	(a.)
70. Minquiers	France North coast	48° 53' 6" N., 9° 17' 5" W.	℄.	39	10	Est. 25th Dec. 1865. (b.)
71. River Plate	English Bank	.....	..	..	..	(c.)
72. Tampico	.....	.....	..	..	..	(d.) See Gleaning from Hydrographic Office of Paris.
1866.						
1. Corton Sand	England East coast	.....	..	..	..	Position changed. (e.)
Paterson Rock	Beacon	.....	..	..	..	Stated to have been washed away.
2. Shoal off Cape Matapan	.....	.....	..	..	..	(f.)

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

(a.) 69.—The buoy lies in 8 fathoms water, with Culver cliff bearing about N.W.b.W., the S.E. buoy of the Princessa N.b.W.½ W., and the Nab light-vessel N.E.¼ N. Variation 21° 5' West in 1865.

(b.) 70.—The light-vessel is near the S.W. extremity of the plateau des Minquiers, about midway between St. Malo and the island of Jersey. She carries two lights; one on the mainmast 39 feet, the other on the mizenmast 26 feet above the sea: they will be seen at a distance of 10 miles, but they may not be at the heights stated; they will, however, in clear weather always be visible at a distance of 8 miles.

(c.) 71.—The light-vessel has been replaced in her original position off the North end of the bank, and now lies with the Mount lighthouse bearing N. 63° W., and Flores lighthouse N. 20° W. Variation 9° 50' East in 1865.

(d.) 72.—Information has been received at the Admiralty, that fog trumpets have been placed on Sambro and Cranberry islands, near the entrance to Halifax harbour and the Gut of Canso respectively.

Each blast of these trumpets will be of *five seconds* duration, with intervals of *twenty seconds*, and in calm weather may be heard at a distance varying from 6 to 10 miles.

(e.) 1.—The Corton light-vessel has been moved 1.6 miles N.N.E.¼ E. of her former position, and *Corton* alone is painted on her sides, instead of Corton Fairway, as heretofore.

The vessel now lies in 15 fathoms at low water springs, with the tidal flag-staff on Gorleston South pier head, in line with the chancel end of Gorleston church, bearing N.N.W. $\frac{1}{4}$ W.

(f.) 2.—*Reported Shoal off Cape Matapan.*—Vice-Admiral Sir Robert Smart, K.C.B., reports to the Secretary of the Admiralty that Mr. G. Yeoman, master of the English barque *Vigilia*, has stated that on the 19th of July, 1865, he touched on a 12 feet shoal, in about lat. $36^{\circ} 3' 5''$ N., long. $22^{\circ} 33'$ E., with C, Matapan N. $\frac{1}{4}$ E. and Ovo islet South of Cerigo E. $\frac{1}{4}$ S.

This statement is not considered final, although discoloured water was *seen*, for the lead was not used, the vessel might have grazed something, or even have felt the shock of an earthquake, common in that neighbourhood. Still the navigator must be on the look out for it. Variation $9^{\circ} 0'$ West in 1866.

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GLEANINGS from Notices to Mariners, published by the Hydrographic Office. Paris.

TAMPICO LIGHTS.—In the *Announce Hydrographique*, of Paris, dated 1st October last, it is stated that the French naval commander-in-chief, in the Gulf of Mexico, has reported that a *fixed* light had recently been placed to show the bar of the Tampico. It is stated to be visible fifteen miles off, and is in lat. $22^{\circ} 16' 45''$ N., long. $100^{\circ} 7' 10''$ W. or $97^{\circ} 46' 50''$ W. of Greenwich.

SINIGAGLIA LIGHT.—On the 10th of July last, the new lighthouse, recently constructed at the port of Sinigaglia, was lighted as a substitute for the old wooden lighthouse.

MOUTH OF THE TYNE.—On the 14th October a *fixed red* light was established on the northern pier-head, at the mouth of the Tyne, on the East Coast of England. It stands inside those of the pier-head, and on the line from the buoy off the pier-head, and the light of Tyne-mouth Castle. The pier-head should have a wide berth from vessels entering, on account of rocks off it.

RIO JANEIRO.—Commander Mouchez, of the French Navy, has reported that the depth on the bar of Rio Janeiro has decreased about half a fathom. On a north and south line, passing through Fort Santa Cruz, there is not more than 6 to $6\frac{1}{2}$ fathoms where there was $6\frac{1}{2}$ to $7\frac{1}{2}$ fathoms. This decrease of depth extends to the eastward, while it increases to the westward towards the Sugar Loaf.

THE MEDEIRO'S VIGIA.—Captain Manton, of the Brazilian transport *Jose San Roman*, from the river Plata to Rio, on the 14th July last, observed a breaker about 9 in the evening, which was considered to be the Medeiro's Rock. It was so close that it was with difficulty avoided in time. He considers it to be thirty miles E.N.E. of the position of it, given in Roussin's charts, by his calculation, after arriving at Rio, the Captain having no other observation by which to determine it.

ROYAL CHARLOTTE BANK IN LAT. 16° S.—On the coast of Brazil, in the parallel of Porto Seguro there is a large coral shoal on which 26 to 23 fathoms are found, and which extends to the eastward in lat. 16° N. to 20 leagues from the shore. The head of it is called the Royal Charlotte Bank: it is steep to for the lead from 23 fathoms,

gives 164 fathoms depth. It is a bank that would give a vessel her position when off the Abrolhos, without recent observation.

BEACON ON PATERSON ROCK.—*Frith of Clyde.*—This rock, which has been marked by a beacon, is covered with 9 feet depth at high water of spring tides. A cylindrical cage marks the summit of the beacon at 32 feet above high water.

LA HEVE LIGHTS.—*North Coast of France.*—The French Government has informed mariners that the experimental electric apparatus at the lighthouses on Cape la Heve is completed. The magneto-electric light is more powerful, and amounts in each to the light of 5,000 carcel lamps. The means possessed of doubling the lights are reserved for foggy weather. The distance at which they may be seen in ordinary weather is 27 miles.

MARIE EUGENIE BANK.—*Indian Ocean.*—The *Marie Eugenie* Bank, 6 miles from the East Coast of Madagascar, and bearing N. 38° E. from Pruin Island, and S. 18° E. from the paps of Natta, has been recently sounded on by the *Pregent* steamer, a vessel which is continuing her examination of it. Although 24 feet is the shoalest water reported, she has not yet found, over several coral patches less than 31 feet, but this sufficiently confirms the position of the bank.

PACIFIC.—*Group of Islands,* reported by Captain Boissier. On 2nd July, 1865, the ship *Nicolas Cesar*, Captain Boissier, passing from Maldon Island for Torres Strait, observed a group of islands (not in the charts) that he skirted at a short distance on their northern side. They were covered with cocoa-nut trees, and visible for 10 miles off. From good observations before noon, and a meridian observation on the same day, he finds their position to be 9° 27' S. and 177° 33' 52" E. or 179° 54' 12" E. from Greenwich.—[Query: Can they be the doubtful Mitchell's group of the Ellin Islands. Ed.]

BANK AT THE MOUTH OF YANG-TSE-KIANG.—*China.*—The captain of the port at Shanghai has reported that a Chinese junk is sunk at the mouth of the Yang-tse river 7·3 about 7 miles S.E.b.S. from the light vessel. As the mast of the junk is not visible seamen must beware that she is the nucleus of a formidable danger.

ACTIVE VOLCANOES IN VAN DIEMAN STRAIT.—*Japan.*—The Captain of the *Pekin* steamer, on the 1st of August, 1865, observed a volcano in action, on the isle of Yerabu, Sima (ile Julie) in Van Dieman Strait.

On the 3rd of August, he also observed another volcano in action on the island of Kozu-Sima, situated thirty-five miles South of Isle Vries or Oho-Sima.

These islands lie in the track between Shanghai and Japan, and the circumstance will enable vessels on that route to rectify their positions by day or night.

LIGHT VESSEL OF CANGIOU.—*Cochin China.*—The light-vessel for the anchorage of Cangiou to guide vessels to the entrance of Phuco-Bing-Giang, of which notice was given (No. 20, 15th July, 1865) is not yet at her station, the vessel and her apparatus not being quite completed.

SIGNAL STATION AT CAPE ST. JAMES.—*China Seas.*—The mast of the signal-station, blown down at Cape S. James, has been replaced. Merchant vessels using Marryat's signals will be attended to at the Cape, which will notify their arrival at Saigon by the electric telegraph, and if required will transmit more intelligence.

LIGHTS OF SCHIERMONNIEKOOG.—The Minister of Marine of Holland has informed navigators that the towers of these lights have been painted red that they may be better seen from sea.

STRAIT OF SUNDA.—Navigators are informed that the new light-house on the Fourth Point in the Strait of Sunda, near Anjer, was lighted on the 20th of August last. The light is 151 feet above the level of the sea, fixed, and visible in clear weather at the distance of 20 miles. The tower is of white stone, and stands close to the former.

CHINA SEA.—The *Valparaiso* Bank, on which the vessel of this name is said to have struck and laid down in lat. $10^{\circ} 20' N.$, long. $107^{\circ} 40' 2'' E.$, about 33 miles to the East of Cape St. James, does not exist in this reported position. It was searched for by the *d'entre cesteaux* and *Echo*, and is concluded to be the Britto Bank.

PORT DIVES: LEADING LIGHTS.—*North Coast of France.*—The French Government gives notice that two *red fixed* lights, established at the port of Dives, will be lighted on the 1st of February next. The upper light is 148 feet above the level of the sea at high water, and will be visible through an angle of 30° . It is in a little tower 6 feet high, situated on the Beuzeval side in $49^{\circ} 17' 7'' N.$ and $0^{\circ} 5' 1'' W.$ of Greenwich. The lower light is 9 feet above high water and may be seen 7 miles off throughout the same angle but *will not be lighted*, while there is less than 6 feet water in the channel. It is on the right bank of the Dives, like the former distant 534 feet in a direction $N. 13^{\circ} W.$ (true) from it in a moveable tower. These two lights in one will lead through the channel into the port.

LIGHTS ON THE COAST OF AMERICA.

It appears also by a notice (No. 279), received from Washington, that the light on Southwest Reef, Louisiana, at the entrance of Atchafalaya Bay, has been re-established since the 8th of October last; being a *fixed red* light, elevated 49 feet above the level of the sea, and visible in clear weather 12 miles, being 42 feet high. It is in lat. $29^{\circ} 25' N.$, long. $91^{\circ} 30' W.$ of Greenwich.

Also, that the light on Shell Keys, on the South point of Marsh Island, is re-established since the 12th of October last, being a *fixed white* light, 71 feet above the level of the sea, and visible in clear weather 15 miles. The light is 81 feet high, in lat. $29^{\circ} 24' N.$, long. $91^{\circ} 49' W.$ of Greenwich.

And by notice No. 280 the light on Timballier Island, Louisiana, west side of entrance into the bay, has been re-established since the 19th of October last; being a *fixed white* light, 60 feet above the level of the sea, and visible 13 miles, being 53 feet high. It stands in lat. $29^{\circ} 4' N.$, long. $90^{\circ} 16' W.$ of Greenwich.

Also that a temporary square white wooden tower, 30 feet high, has been erected at a distance of 280 feet N.b.W. from the old tower in which is a *fixed white* light, varied by flashes every minute and a half, and exhibited since the 15th of October last. The light is 40 feet above the sea level, and visible in clear weather at $7\frac{1}{2}$ miles. Due notice will be given of the exhibition of the light from the old tower.

The light vessel has been re-established off the end of Frying Pan Shoals, off Cape Fear, North Carolina: schooner-rigged, and painted *yellow, Frying Pan Shoals*, seen in large black letters, on each side. The lights are fixed (one on each mast,) at an elevation of 40 feet above the level of the sea, and in clear weather should be visible from a distance of 12 miles. The vessel is moored in 10 fathoms water, and in lat. $33^{\circ} 35' N.$, long. $77^{\circ} 50' W.$ of Greenwich.

The soundings, in approaching the Cape Fear Shoals from the eastward, are regular; but from the westward irregular.

BAY OF SAN GIOVANNI DI MEDUA.—*Adriatic.*

Commander G. Tryon of H.M.S. *Surprise*, (December 1865) gives the following notices—

The Bay of San Giovanni is difficult to discover until close to it, and is known by a solitary ridge from the hills, extending to the sea. The rocky shore of it, not a mile long, forms the bay; a sandy beach extending westward and southward of it.

The bay is much contracted by debris from the hills, and sand banks formed by the stream that falls into it.

The anchorage off the bay, open to S.W. gales, is considered safe, as they are unknown, and it is well sheltered from the Bora and Scirocca. Small vessels run into the bay, rounding the shoal which extends half way across it from the western side of entrance, and make fast a cable to the rocks.

Vessels from westward give the river Bojana (mouth) a wide berth, to avoid a six feet bank extending nearly a mile from the shore, formed by the river stream shifting occasionally with S.E. gales. The mouth of the river will be known by a white two-storied house, a guard house, and a small chapel. The land is low, well wooded, and level as far inland as the base of the mountains.

Vessels from southward, after passing Cape Rodoni, keep well off the mouths of the Drino, low sand spit lying outside those on the charts, and shoal water again outside of these.

San Giovanni is the most unhealthy port of Albania in the summer months; but in October is free from malaria and fever. In August and September few escape the latter, however short their stay: a fact confirmed by the appearance of the people of the country.

Communicating with Scutari.—To Antivari ten hours, road bad; there is a telegraph, but the station is an hour from the landing place. Dulcigno is six hours from Scutari; the road fair, horses may be obtained. S. Giovanni is nearly eight hours from Scutari, viz., one-and-a-half to two hours from Alessio, where horses may be obtained,

thence six hours to Scutari. A messenger to Scutari returns on the second day.

There is a telegraph from Corfu *viâ* Otranto and Valona to Scutari, now extending to Durazzo. Cargo for Scutari is discharged into small vessels at San Giovanni, for Oborti eight miles from Scutari, and thence up the river in country boats. A light steamer runs nearly monthly from Venice and Trieste to Oborti, but her time is uncertain.

CHARTS AND BOOKS PUBLISHED BY THE HYDROGRAPHIC OFFICE, ADMIRALTY, in January, 1866.—Sold by the Agent, J. D. Potter, 31, Poultry, and 11, King Street, Tower Hill, London.

155.—Mediterranean, Italy, Spezzia Gulf, French survey, 1846, (1s. 6d.)
302.—Newfoundland, West Coast, Knife Bay to Cape Anguille, Captain Orlebar, R.N., 1862, (1s. 6d.)

712.—Newfoundland, Cow Head and Roche Harbour, French survey, 1857, (1s. 6d.)

1,711.—Prince Edward Island, Hillsborough River to its head, Captain Bayfield, R.N., 1844, (2s. 6d.)

71*d*.—East Indies, Madras to Calimero Point, Lieutenant Swency, I.N., 1860, (2s. 6d.)

709.—Suratra, Priaman to Oujong Indrapoera, Dutch survey, 1861, (2s.)
1,907.—Vancouver Island, Sooke Harbour and Basin, D. Pender, Master, R.N., 1864, (1s. 6d.)

634.—Vancouver Island, Harvey Port, Captain G. H. Richards, R.N., 1860, (2s.)

630.—Vancouver Island, Neville Port, Captain G. H. Richards, R.N., 1860, (2s.)

1,024.—Australia, East Coast, Port Stephens to Tacking Point, Commander Sydney, R.N., 1863, (2s. 6d.)

1,249.—Fiji Islands, Ovalau and Moturiki Island, Captain Denham, R.N., F.R.S., 1856, (2s. 6d.)

742.—Fiji Islands, Ono, Simonoff and Michaeloff Islands, with five plans, Captain Denham, R.N., F.R.S., 1856, (2s. 6d.)

Hydrographic Notice, No. 4.—Bay of San Giovanni di Medua.

Hydrographic Notice, No. 10.—Curaçoa Reef discovered.

New Lighthouse Books corrected by Commander Dunsterville, R.N., to the 1st of January, 1866.

British Lights, (1s. 6d.)

French, Spanish, &c., Atlantic Lights, (1s.)

Africa, West Coast, Lights, (6d.)

British North America Lights, (1s.)

United States Lights, (1s. 6d.)

West Indies Lights, (6d.)

North Sea and Baltic Lights, (1s.)

Mediterranean Lights, (1s.)

South America and West Coast, North America, (6d.)

South Africa, East, India, &c., (1s.)

EDWARD DUNSTERVILLE, *Commander, R.N.*

Admiralty, Hydrographic Office, 20th January, 1865.

ERRATUM.

In page 43, line 8 from the top of page should be read as line 11.

THE
NAUTICAL MAGAZINE

AND

Naval Chronicle.

MARCH, 1866.

THE WRECKS OF TORBAY:—PROPOSED BREAKWATER.

If nature, among the gifts which she has bestowed on our island, has proved niggardly to it in harbours, she has not only supplied us with the means of making them, but occasionally visits us with storms and gales, as if to remind us that we have not made up her deficiency! In fact, she does more than this; for the work she leaves us to do, in order to complete safe and roomy harbours, is frequently but a small portion compared with her own; and to a maritime country to execute such work should be its first care.

England, we all know, essentially is a maritime country. Her fleets are found in every sea. She trades with the whole world, and she glories in it; and yet her fleets are safer on their voyages or in distant countries than on her own coasts! Here at home, how often are her ships cast away on her shores, because she has neglected to provide them with harbours in which they may take refuge from the storm. Her seaman may contemplate those shores facing the four quarters of the horizon, but he turns from them with the conviction that their great defect is the deficiency of harbours. How each returning wintry season attended with its gales that bring devastation among our shipping, verifies his conclusion by loss of property embarked, loss of life among our seamen, calamity and suffering to the helpless widow and her orphan children. How often is this picture presented to us again and again, and yet we do nothing! Nature may set us the example;—she may do her work, yet we do not complete it: and over and over again her reminder is in vain. Like the true

selfish animal which mankind always was, does she complete her work and really give us a good harbour that requires nothing to be done to it? Oh yes, he will be too glad to appropriate it to his purpose, and fill it with his ships forthwith! How often has it occurred to the seaman on contemplating in summer weather the shores of a magnificent bay with its projecting arms, leaving nothing to be desired but protection from the sea to convert it into a safe asylum harbour for ships, still to be regretting that a parsimonious population will not exert itself to complete what nature has left for them to do, and that bay remaining still to be the scene of wreck and death.

We have been led to these sad reflections by the account of the gales of January last, and the ravages and destruction which they produced among the shipping of Torbay,—ravages which will long be remembered there. And once more the feeling is awoke that the beautiful anchorages of that bay should no longer be at once a decoy and a trap for the destruction of shipping. The subject, we are glad to find, has been warmly taken up, that Torbay should no longer remain in its present neglected condition; but that a harbour of refuge should be formed there, to afford an asylum from the storm to every ship that needs it, whether belonging to its own neighbourhood or merely passing up or down the English Channel. The sentiment is a noble one, the locality is a noble one, the occasion just such a one as was wanted to show how excellent, how sweet would have been the safety which such an asylum would have proved in the extremity of the severe and peculiar storm by which Torbay was visited on the 11th of January last.

This is the character of the weather which was described by Admiral Sheringham on the occasion to which we are referring. He said at the meeting, an account of which we shall give, "Lately they had had a succession of gales from the westward, therefore a number of ships had congregated in the bay. But in the fatal night the wind flew round to the East and S E., when it was utterly impossible for them to get away, and as a natural consequence nothing but shipwreck stared them in the face!" And what was this consequence? This occurred on the night of the 10th to 11th of January, and a day or so after we read in the *Western Morning News*, that "it was the wreck of forty vessels and an appalling loss of life!" The account continues, "The most fearful gale which within living memory has blown on Torbay, yesterday strewed its shores with wreck and brought desolation to many homes. * * * The fine fleet of vessels in the bay, which on Wednesday numbered about sixty sail, was scattered in every direction, and [on the next morning] not more than a dozen were riding at their anchors, and even these were so labouring as to cause the utmost anxiety on account of their dangerous and helpless condition. In the immediate locality of Brixham, namely, at the back of the pier, nearly a score of craft, including schooners, brigs, and a fine barque and several sloops were thrown against the pier, by their terrific bumping, not only destroying themselves, but threatening destruction to the pier likewise. One by one their spars dropped,

masts fell, bottoms burst out, and hulls sank, breaking up in some cases to fragments as small as match-wood, which, with their cargoes, and in some sad instances their human freight also, were to be seen floating on the breakers which dashed against the pier, casting a thick spray on to the quay, and even at times rushing madly over the pier wall. All this time frantic excitement prevailed throughout the town,—not only on account of the news of the wrecked vessels, but for those not yet wrecked,—and many noble efforts were put forth to save life and property. The quays, pier, and indeed every seaside spot, were crowded with eager and terror-stricken crowds of men and women.”

[A vessel is driving before the gale towards the harbour.] “Every eye was strained, and people looked on with bated breath, expecting to see her quiver and sink, when she fortunately ran between the two fishing sloops already lying at the spot total wrecks, and swaying to and fro with the wind the sloops received her blows. A warp was thrown to her, and to the delight of all she floated into the harbour.”

Not so fortunate, however, were too many others, the account says, at Brixham “the estimated loss of vessels at present is about thirty; some of which are gone to pieces, and most of them are total wrecks. Scores of poor shipwrecked mariners are distractedly wandering about Brixham and Churston, the major part of whom have lost their all.”

From Torquay the report is, “At Brixham the most horrible scene last evening met the eye: there are two fine ships ashore inside the breakwater. At the back of the pier ten vessels have been pounded to match-wood, and all that remains are a shattered barque, her masts still standing, a brig, a schooner, and another brig, all inextricably mingled together. Twelve trawlers have also been sunk and destroyed. The Brixham fishwives did a noble act. In the height of the gale, when the cries of drowning men were mingled with the howling of the wind, they brought out their mattresses and bedding and made a fire to indicate to the shipwrecked sailors the entrance to the harbour.”

“So much destruction occurring at Brixham could not but produce similar proportionate results in other parts of Torbay. Thus we read, ‘Eleven vessels have gone ashore at Broadsands, five of which are total wrecks,’ ships have foundered at their anchors in the bay, and ‘the loss of life in the whole bay is variously computed, a moderate estimate being one hundred.’”

Such was the scene which Torbay presented on the night of the 10th to 11th of January last;—that same bay, placid and charming, with its surrounding shores, when lighted up in fine weather by the enlivening sun; but which, open to seaward, being exposed to the effects of an easterly gale, is converted into a scene of dire desolation by the fury of the wind and the ruthless waves! Ample protection it affords from the West round by North and South, but is a snare for anything from the eastward of those points, especially settling to a S.E. gale is certain destruction to any helpless sailing vessel caught there!

So sudden and calamitous a visitation produces a contrast which at once recalls the quiet condition of the bay in the ordinary weather of westerly winds : and the first step after the gale is to relieve, as far as can be done, the withering effects of so much wreck, by which many a hearth is made lonely and desolate. Still the question naturally presents itself, why should we remain subject to these miserable effects of easterly gales, and why should our beautiful bay be torn from its quiet condition when all that is wanted is a mere breakwater to form a barrier to the waves, and interfere with nothing but the rude shock of the unruly sea ? The tide might flow and ebb in it as usual, and under the shelter of such a barrier England's commerce passing and repassing either way up or down the English Channel, might ride in safety with any wind, and even in such storms as that of January any weather-beaten vessel might run to it for shelter, and ride in safety through any gale from any point of the compass. No doubt such was the reflection of more minds than one when a meeting was convened at Torquay to entertain the subject. The hurricane had done its work. It had left a lesson which taught the treacherous nature of the sea that washed its shores, and promised to return on a similar errand of destruction on any future occasion. Was it to be permitted and to commit similar ravages ? The people of Torbay shore say no ; and assemble to deliberate how to prevent it.

So patriotic a motive, one so thoroughly hand in hand with their country's prosperity, so humane in purpose, and so beneficial, not only locally but generally, may well be warmly taken up by the neighbouring population, as was the proposed breakwater for Torbay at the public meeting held at Torquay on Monday, the 29th of the same January, while yet the ravages of its gale of the 11th lay in melancholy evidence of the necessity for such a structure. We find by the report of this meeting in the *Torquay Directory and South Devon Journal*, that it was held in the Town Hall of that place, to consider the propriety of adopting a memorial to the Board of Trade, with a view to the construction of some further protection against storms in Torbay. The meeting, it was said, was very well attended, and on the motion of Mr. Belfield, Mr. A. B. Sheppard, Chairman of the Torquay Board of Health, was called on to preside. And we find what was said so concise and of so much importance, that we give it *verbatim* as reported.

We shall reserve our own further remarks for another number, and only trust that the peculiar importance of Torbay, from its position on the high road side of the shipping of all nations, not only to the East but to the West of it, will give it a claim over all others in the eyes of the government. The expression on the occasion runs thus :—

The Chairman, in opening the proceedings, read two letters, from Sir L. Palk, M.P., and Mr. Kekewich, M.P., the former expressing a hope to be present before the meeting concluded, the latter excusing himself, being obliged to be at the adjourned meeting of the Quarter

Sessions. He then made some remarks apposite to the business in hand, and called upon

Mr. John Belfield, Chairman of the Paignton Local Board of Health, who moved the first resolution—"That in the opinion of this meeting some further protection for the shipping from storms in Torbay is necessary, and that a memorial be presented to the Board of Trade, urging upon them to take the matter under their early consideration." He said this was not a mere local question—one that affected only the district of Torbay, but was of national importance; it was taken up in the interest of the commerce of this country—to benefit vessels of all nations, and to prevent, if possible, such wholesale sacrifices of life and property as had recently occurred in Torbay. The government had in times past instituted surveys of this bay, but from various circumstances had given attention to Portland and Holyhead, which it was thought had superior claim; but however much they might have set aside the claims of Torbay, it was to be hoped that after the recent terrible wrecks, the government would now consider the subject was not unworthy of being dealt with seriously.

Mr. Lakeman, Chairman of the Brixham Local Board of Health, seconded the motion, in an interesting address, in which he stated that when the application was made to build the present harbour at Brixham, which was now incomplete, the House of Commons required them to make it larger than originally intended, thus showing their desire that it ought to be a harbour of refuge. Speaking of the cost of the breakwater which they were anxious for the government to construct, he said the loss of property in Torbay during the late gales, was estimated at from £150,000 to £200,000, which alone would have paid a very handsome interest on the total sum required for such a work. What was wanted was a breakwater on a large scale, which would be available for the navy as well as the mercantile marine.

The motion was put to the meeting, and unanimously carried.

Admiral Sheringham remarked that the object of the meeting was twofold; first, whether a harbour of refuge—that was to say, a breakwater forming a harbour of refuge, was necessary; and secondly, whether this particular locality of Torbay was in the position of demanding the attention of the authorities to provide such a great work. It required very little, he believed, to be said on the second part; an answer had been given to it by the sad calamity which had just befallen them; for there was not a doubt that had a breakwater been constructed in Torbay years ago, which it ought to have been, not only would we not have had to deplore the sad catastrophe which they all had the misfortune to witness, but many others, of which we could know nothing—of vessels which would have sought the shelter of the bay under distressed circumstances, but had been obliged to keep out. With the wind off shore the anchorage was safe; but when a storm prevailed there was no knowing when the wind might veer round suddenly to the point of danger. That was the case in the present instance. There was a gale of wind—a succession of gales from the West; and therefore a number of vessels were congregated in the

bay. But in the night the wind flew round to the East and S.E., rendering it utterly impossible for them to get away, and the natural consequence was that nothing but destruction stared them in the face. There was no doubt that harbours of refuge, or breakwaters, were designed for several purposes; first, for the preservation of human life; secondly, for the safety of property; and thirdly, for providing a safe asylum for all ships that may run for safety, whether in distress or for shelter from adverse winds.

The next question was, whether it ought to be mooted at this time. He apprehended that there ought to be certain centres, from which such questions should originate—and this was certainly one of the centres, of which there could be no doubt, and which was quite evident from what had just happened. Not only had we lost many lives and much property but the roadstead had been destroyed as a roadstead, in consequence of the ground being encumbered with wrecks and anchors; secondly, (and which was of no small consideration,) one of the most important fishing stations had been seriously damaged by the destruction of a large number of fishing vessels, in consequence of the wrecked vessels driving upon them; and therefore he believed Torbay had a right to take the initiative in the matter. And he hoped that the steps would be such that they would receive strength and support from one part of England to the other, and that it would be taken up not by the government only, but by the legislature of this country. Notwithstanding that he cordially agreed with the resolution which had been so ably moved and seconded, and carried, he was still of opinion that a petition should not only be sent to the government, but likewise to the House of Commons. But before he gave his reasons for such a step, he would deal with the objections to the breakwater. He had heard it stated that if ships ran in for shelter, and were to break from their anchors at a time when the wind was off shore, they would in all probability drive on the breakwater and be wrecked there! In the first place it was their present object not to protect ships from an off shore wind, but the on shore wind; and if they were afraid of running on the breakwater, they had better run to sea. There were two sides to the question, and there were two sides to the breakwater, and if any masters of ships really apprehended any such danger, he would advise them to anchor outside.—(laughter.)

This was a matter which had been mooted long ago. Its necessity was so well known that it had been brought before the House of Commons; and the House of Commons thought it of such consequence, that they appointed a private committee to inquire into the subject in 1858. He would now proceed to read a few extracts from the report of that committee, on the subject of developing the system of harbours of refuge. The report said:—"Any expenditure, the effect of which shall be to prevent or mitigate this loss (lives and property) may be regarded in a national point of view as an investment, the value of which is to be judged by the amount of national saving effected thereby." Again,—“With regard to the saving of life, that

is a question which is of public importance, and as involving a necessity of action on the part of Parliament, must be looked upon as one of great moment. The loss of life is generally the result of total wrecks, and it is that class of casualties which would be most avoided by harbours of refuge." The report in another part went on to say, "Harbours of refuge on the open coast are constructed not for the use of any individual or community, but *for the use of all the ships, both British and Foreign*, that frequent these coasts; and it seems to the committee, that the entire community of the country stands in the same relation to harbours of refuge, as individual communities and corporations stand in relation to private harbours." The report went still further, and entered into the cost of such works, but into this he need not now go.

The next question to be considered was this, if the necessity for a breakwater was conceded, should it be constructed here? Where should it be built, and what should be its size? Now, in his opinion, the facilities for constructing a breakwater in Torbay were far greater than at Portland; and as he had had something to do with Portland, he thought it would be as well to take a plan of the breakwater at Portland, and transfer it to Torbay, showing what it would be, if precisely of the same size. He found that the breakwater at Portland when completed, would protect something like an area of 4,300 acres for available anchorage, having a depth of water from three to nine fathoms. A similar breakwater in Torbay would enclose an area of about 3,000 acres, with a depth of from three to six fathoms. That, he believed, would be quite sufficient for all the purposes of a harbour of refuge in Torbay. It was not a bit too large, and if the question was ever entertained by the government, he hoped nothing would induce them to construct a breakwater which would enclose a smaller extent than that he now suggested. The breakwater at Portland was undertaken at a time of great difficulty. It was an entirely new question. He would say nothing of Holyhead, for that was a failure. The former breakwater was built under a new principle; it was a very difficult thing; all the "plant" had to be made, and they had to bring the stone from the quarry a distance of 2,500 yards. Here, for the same purpose we should only have to bring the stone 800 yards; and in the case of Torbay the height of the quarries would be only 180 feet above the sea; whereas at Portland the quarry was 400 feet.

It would be apparent to all from this that there was great expense incurred in laying tramways—after the work in the quarry—to bring the material to the place from whence the breakwater was to start. Another subject to consider was this, whether it would be better to work this great undertaking by free labour or by convict labour. And here he would state at once, that he should prefer free labour as the least expensive. It was a matter of history that convict labour was a very expensive thing to pay for. In the first place there were prisons to be built, and barracks for the soldiers to be built; and these would have to be erected perhaps on Berry Head, which would have to be isolated from the adjoining neighbourhood, in order that people

near by might go to bed in safety without any fear of the convicts escaping. Then these men had to be fed and clothed, and after all only six hours' work a day could be got out of them, and that most unwillingly done, and requiring a large amount of supervision, in order that it should be done. Convict labour was exceedingly slovenly, and hardly done at the right time. Mr. Coode, the engineer at Portland, had very great doubt about the utility of convict labour; for his work was constantly stopped because the convicts had not prepared the stone for him in time to lay it down. Supposing, in the case of Torbay, two hundred free men were employed, that is to say including labourers and skilled men; the average cost would be about one pound a man per week—that would be a little over £10,000 a year. Another thing worth consideration at Portland was the fact that they had great facilities for isolating the convict establishment from the neighbouring part of the coast—Weymouth and Melcombe Regis; there was a slip of shingle which separated the island from the main, and which they could not well have passed unobserved. That was not the case here. If once they broke out, by slipping over the rocks they had a chance of getting free.

Now as to the time in which the work could be done. According to the plan he now produced, the breakwater would be 9,000 linear feet, or one and a half geographical miles in length; and considering the experience already gained at Portland with the vast quantity of "plant" which might be procured from thence and made available, the breakwater in Torbay could be done in a very much less space of time than the larger work at Portland. Besides, whilst that breakwater was laid in parts at a depth of nine fathoms, in Torbay it would not be more than six. Mr. Coode stated that in 1858, when he had got his work well in hand and knew what he was able to do, he proceeded with the breakwater at the rate of 1,200 feet per annum. Now, if we in Torbay had 9,000 feet to do (having greater facilities), that would give five years, or six at the outside for the completion of the undertaking. At Portland the cost of 4,000 feet was estimated at £354,000, without the plant, and the whole of the 7,500 feet when completed would cost £860,000. In Torbay they had 1,500 feet more; but it might be fairly stated that a breakwater in Torbay could be completed in five or six years for £700,000. That he put forward as his opinion. He had now given all the information he had been able to gather, and he had nothing more to say than that as an old naval officer he had been engaged in the Channel Fleet during the French war, blockading the French ports, and had often been obliged to run for Torbay, But they would have no more dared to remain at their anchors with an impending wind from the South or S.E. than to run for Brixham Harbour. And without further stating what sort of harbour the harbour of refuge should be, he would merely say that the sooner the matter was taken up by the legislature the better.

Mr. Randolph Robinson, believing that a petition ought to be sent to the legislature as well as the Board of Trade, moved—"That a petition to the same effect be signed and forwarded to the Lord Lieu-

tenant of the county, for presentation to the House of Peers, and to the members of the county for presentation to the House of Commons." As the Chancellor of the Exchequer, he said, anticipated a large surplus, a portion of it could not be better applied than in such a work as this.

Mr. Wolston, of Brixham, seconded the motion, and stated that from an experience of thirty years, the wrecks that occurred were on the South side of the bay, from which, he argued, that a breakwater, protecting shipping from the S.E. wind, would be of incalculable advantage. In a very long speech he showed that the inhabitants of Brixham had completed 700 feet of their breakwater, at a cost of £6,000; and if this were carried on some hundred feet further, much greater shelter would be afforded to shipping, and from past experience it could be done at about £1,000 per hundred feet. He despaired of seeing the larger scheme, suggested by Admiral Sheringham, carried out; because the government had been repeatedly petitioned by the inhabitants of Brixham to the like effect, but without any result. He concluded by pointing out the importance of having a lifeboat for Torbay.

Mr. Belfield remarked that the last speaker, as well as Admiral Sheringham, had spoken of the cost. His view, and he believed all present would agree with him, that *whatever the cost might be, a breakwater ought to be constructed in Torbay*. They were not to tell the government whether it was to be a long or short breakwater—but to tell them of the disastrous loss of life and property that had occurred—the amount of lives and property hourly imperilled—and how incumbent it was upon them to take such steps as in their wisdom they might deem fit to protect the property of the nation at large.

Sir L. Palk addressing the meeting, after regretting very much that his colleague, Mr. Kekewich, was not present, said:—I have listened with great attention to all that has been said to-day. I cordially concur in a great deal of what has been so ably urged. I am sure no one who has a fresh recollection of the sad disasters which so recently desolated our bay can doubt, for one moment, the necessity for taking some steps for providing protection for the large number of ships which annually come in here for shelter. Mr. Robinson said just now that we should be making an application to the government at a very fortunate time, when the Chancellor of the Exchequer will probably declare a surplus of receipts over the expenditure. Gentlemen, I trust that that good fortune may long follow us—that peace and prosperity may so shine upon us that the fleets of ships which now visit our shores may be doubled and quadrupled in numbers.

The gallant Admiral who has addressed us has seen service in years, so far ago, that they are beyond the recollection of many in this room. But at the time that he served, as he told us, in the Channel fleet, during the French war, the number of ships that then visited Torbay was infinitesimal to that which now seeks its shelter; the value of the property which then floated in the bay was abso-

lutely nothing as compared with that which is sometimes to be seen here. And if you look at the vast extent of our commerce, and the enormous increase of our shipping—if you look at the prosperity that it has pleased God to vouchsafe to this country and assume that it goes on so, and then set before your minds the vast amount of property which in successive years will often take shelter in this anchorage, it will be seen at once that it becomes our urgent duty to do what we can to render it a place of safety. It will be the duty of my colleague and myself to present the petition to the House of Commons which you will entrust to our care. It will also be our duty to *urge the strong claim that not only Torbay, but the whole country at large has in this matter, upon the government*; and it will be shown by us that there is every facility for the work in this neighbourhood; and that in all probability when completed, it will be the means of saving many lives, and some millions of money.

But, sir, I feel there is but one way of presenting it to the government in such a way as to entertain the attention of Parliament, and that is that it should be urged on them to make it a *national harbour of refuge*—a harbour not adapted merely for the particular class of vessels employed in this bay, *but which shall afford shelter to ships of every nation, to every man-of-war, and to that fleet of iron-clads which we have for some years past been building at an enormous expense*. I am sure I cannot offer an opinion as to what the answer of the government may be; but I must say that I think we are very fortunate in having at this moment at the head of the Admiralty a noble Duke, who is a resident of this neighbourhood and who knows Torbay well, and who can speak personally as to the facilities which it affords. But I may at the same time say this that I have constantly heard applications from the northern parts of England, urging the construction of harbours of refuge, with almost as strong a claim as Torbay has. Nevertheless you may depend on it I shall lose no opportunity in endeavouring to obtain this not for you only, but for the universe at large. And I shall do this because I feel convinced that however expensive it may be to make harbours of refuge around the coast, if you look on it only from the commercial point of view, without saying a word of the humanitarian part of it, you will perceive at once the enormous amount of wealth it will be the means of saving; and *that the construction of harbours of refuge will in a few years amply repay us for the cost of their undertaking*. But if actuated by higher motives, and nobler objects, by which all of us I trust are actuated,—how much better will it be if by a small diminution of our annual incomes we can save valuable lives—the lives of our brave mariners, and thus stave off a vast amount of misery from a number of homes, and diminish the number of sorrowing widows and orphans.

The motion was then carried.

The Rev. W. F. Poland moved and Mr. R. S. S. Cary seconded,—“That a committee consisting of the chairmen of the Boards of Health of Torquay, Brixham, and Paignton, with Admiral Shering-

ham, Messrs. Kitson, Vivian, Robinson, Studdy, H. O. Bartlett, Kendrick, Murray, and S. Slade be appointed to take the needful steps to carry out the above resolutions."

The resolution was carried.

Mr. R. C. Wilkinson said that as even in the event of the government conceding to their desire to build a breakwater, many years must elapse, if it was done within the lifetime of those present,—it would be wise in the meanwhile to carry on minor works which would have the effect of improving the shelter now afforded by Torbay; he especially referred to the Brixham breakwater and the remark made by Mr. Woolston, and said if even if that could be completed it would doubtless have a good result.

Mr. Studdy, in reply, expressed his conviction that the extension of the Brixham harbour would have failed to have been of any service to the ships during the late gales.

Mr. W. P. Murche took a contrary view, and was satisfied that ten at least of the vessels wrecked would have been saved. The *harbour at Portland he said was built owing to the unanimous working together of the members for Hants and Dorset*. But he feared such a hearty cooperation in this place could not be hoped for. However, it was their duty to urge this work upon the government, and if they did not do it, on them must rest the responsibility of whatever loss of life and property might take place in Torbay hereafter.

On the motion of Mr. Belfield, a hearty vote of thanks was accorded to the Chairman.

TURRET SHIPS AT HOME AND ABROAD.

Naval warfare hereafter seems evidently destined to be distinguished by two important features, quite of modern application, and new to the former navy of England; and these are the torpedo and the turret ship. Iron plating, applied to ships as armour, is already established as another mode of defence unknown until of late years, and one in which this country may be considered, if not to have led the way, perhaps to have been better prepared than her neighbours; but in the two former new applications, the Torpedo and the Turret, we seem to have permitted those neighbours to outstrip us.

There is something so insidious and apparently unfair in the torpedo, that in former days our forefathers were so chivalrous as to look on it as disgraceful to resort to such warfare. But time removes prejudices, and when we recollect its application by the Americans half a century ago, and its recent application by them in the rebellion and also by the Russians in the late war, such polish of sentiment disappears, and England must adopt neighbours' fare. In our last volume we recorded experiments with torpedoes of former days, and report says

that we have possessed ourselves of the principle, in order of course to its future application when required.

The turret ship is a much more modern device, originating probably from the desideratum of using as heavy guns afloat as can be employed on shore. One of the lessons of the great war which has now been closed for half a century, was the enormous advantage of heavy metal for the armament of ships, and the Americans, we remember, as far back as the time we have mentioned using heavy guns in small vessels; an entire new fashion from that which signalized even our own small craft in those days. But in modern times, when alluding to heavy metal, a shot of thirty-two pounds is a mere trifle, for guns carrying shot of a hundred, three hundred, and even six hundred pounds weight, are not too large to be employed in naval warfare. Such metal would scarcely have been credited by our old seamen of the wars of former days; but they are now nothing more nor less than acknowledged facts,—from guns which are to be employed at sea in future naval actions. And England has been long busy in experiments between rival makers as to which is to be awarded the honour of success as the most approved gun.

The reader is no doubt well acquainted with the long competition between Sir William Armstrong and Mr. Whitworth. The former gentleman had the credit of having produced the best gun of the day. But in the opinion of naval men there were objections to it which time seems only to have confirmed. The plan of retaining the discharge of a shot by means of obliging a leaden band to take by resistance a series of fine grooves in order to obtain for it the rifling principle, had two faults. One was, the loss of time in the discharge of the gun, which was at once fatal to the aim; and the other was the liability of destruction or damage to the lead band while in store. Both of these are formidable objections at sea, and the navy might be congratulated on the release from such a treatment of their right arm. It is also very well known that other objections in what are termed vent pieces flying off, so that the injury and even destruction became common with those using the Armstrong gun, and in our opinion it will be a happy event for this country when the seaman knows that in the heat of action he has to deal with a *safe* gun—one that will not play such tricks as are attributed to the Armstrong piece.

Hence no one wonders that the Whitworth is the choice gun at present. And busy as we have been with our experiments, the Americans have been no less so with theirs. Heavy metal too is the order of the day with them as it always has been. And we find a piece of information in the *Daily News* of the 19th of December last which shows that they have adopted and sent to sea even heavier metal than we have yet attempted. We read that:—

“A powerful United States squadron left New York for the Pacific soon after the news reached Washington of Admiral Parcaja's demands upon the republic of Chili. It consisted of the following ships of war:—

SHIP.	TONNAGE.	GUNS.
Monadnock (iron-clad).....	1,564	4
Vanderbilt	3,360	15
Powhatan	2,415	21
Tuscarora	997	10

"The *Monadnock** is a double-turret monitor, carrying two 15-inch guns in each turret. From her speed and seaworthiness she is considered to be the most successful iron-clad in the American navy, and has been specially commended for her efficiency by Admiral Porter. Her broadside of four guns weighs 1,920lbs.

"The *Vanderbilt* is a paddle-wheel steamer, carrying twelve 11-inch guns in broadside, and three 200-pounder rifled guns in pivot. The 11-inch guns throw a solid shot of 170lbs.

"The *Powhatan* carries 9-inch guns in broadside, and an 11-inch smooth bore and 100-pounder rifle in pivot. The armament of the *Tuscarora* is similar to that of the *Powhatan*, being composed of 9-inch guns and the usual heavy pivots.

"Late advices from America inform us that the *Tuscarora* reached St. Thomas on the 10th of November, and the remainder of the fleet on the 11th; the squadron remained there one week, and then departed for the Pacific. As there is nothing for such a fleet to do in the vicinity of San Francisco, it is not impossible that the officer in command may be bound for Valparaiso. The silence of President Johnson upon the Chilian question may, perhaps, be considered ominous."

We must not forget that the term *Monitor* comes to us from across the Atlantic, and perhaps advisedly, to warn us of what our American neighbours were doing, some time, we believe, about the beginning of the rebel war. But, whether or not the name is well chosen, as advising us at once of the enormous power of the cupola or turret ships, and we at once see how the Americans have turned to account the experience they have gained in the same rebel war by overcoming the difficulties of making her with her heavy metal as good a seagoing ship as any broadside ship may be with lighter guns. It is said that the *Bellerophon*, a plated ship which we have just completed, is to carry three hundred pound guns on her broadside. Whatever may be the result, it is yet questionable whether the ship is yet built that can carry six hundred pounders in her broadside battery in all the trying conditions of heavy weather at sea. We have heard it said that the monitor principle has been copied by the Americans from our own countryman Captain Coles, of the Royal Navy, for we find the following opinion of the invention in a report by the United States Admiral Goldsborough, on the question of armour-plated ships of that country. He says:—

"As difference of opinion is found among seamen, as well here as abroad, as to whether it is better to use the guns of a plated ship in

* In our March number of last year are some important remarks on the American monitors, especially this vessel, which seems to be all but a piece of perfection.

turret, or in broadside with a deck over them. For my part I have no doubt on the subject, particularly if the ship be of moderate dimensions, so that with her swiftness she might manage to find a favourable moment to enable her to act as a ram sufficiently to crush any enemy's sea-going ship. To wish for more is, in my opinion, merely superfluous.

"I consider the turret as decidedly preferable for the following reasons:—

"The turret ship renders a single cannon equivalent at least to two others of the same class that might be in a battery in ports, and that with a very large diminution of crew.

"She allows the use of much heavier guns.

"She does not require of necessity so superior a degree of swiftness.

"She affords better protection to her guns and their crews, and besides this, she allows the use of much longer guns, even at sea."

And in reference to these plated ships for sea, he adds:—

"Nothing in my opinion, has come up to the plan of Captain Coles, of the English navy. I think his system is about the best of the present day. In my humble opinion he has solved the difficulties of the problem better than any one hitherto. He has shown a fertility of resources, an amount of talent, good sense, and experience which does him the greatest honour."

Certainly in giving us the hint with their monitor, the Americans have not failed to profit by it themselves, for were they all enumerated which they have built and are building, there would be a very respectable list—some of which we have named in our last year's volume. From "Captain Coles's correspondence with the Admiralty," printed at Ventnor, "on giving free publication to his views on iron-clads," we make the following extract—

Turret Ships.

Name.	Horse power.	Speed.	Weight of One Broad-side protected by Armour.	Tonnage.	No. of Men.	Designed and Built by.
Rolf Krake (a)	235	10·3	272	1,236	100	Messrs. Napier, Glasgow.
Royal Sovereign (b)	800	12·2	1,500	3,765	300	Conversion.
Scorpion (c)	350	10·5	1,200	1,833	170	Messrs. Laird, Brothers.
Wyvern (d)	350	10·2	1,200	1,833	170	Ditto.
Smerch, twin s. (e)	235	10·5	600	1,350	100	Messrs. Mitchell.
Arminius (f)	240	11·0	288	1,230	99	Messrs. Samuda.
Affondatore (g)	700	14·5	600	2,306	185	Millwall Iron Works.
Huascar (h)	300	12·2	600	1,100	83	Messrs. Laird, Brothers.
Minerva twin s. (i)	140	10·5	300	1,000	80	Ditto.
Prince Albert	500	11·4	1,200	2,537	200	Admiralty.
For Russia (k)	250	11·0	1,200	1,500	120	Messrs. Mitchell.
For Russia (l)	250	11·0	1,200	1,400	120	Ditto.
Total	4,350	135·0	10,160	21,100	1,732	

- (a) In 1864 was in a heavy gale of wind in the Baltic.
 (b) Went over to Cherbourg against a strong breeze.
 (c) Was tried during September in severe weather. (see *Times*).
 (d) Was tried during September; has tripod masts.
 (e) Russian Government; tripod masts; has been in a heavy gale of wind.
 (f) Prussian Government.
 (g) Italian Government.
 (h) Tripod masts.
 (i) Made a passage of seven days to Madeira.
 (k) At St. Petersburg.
 (l) At St. Petersburg.

And this places us in possession of the list of all that have been produced in this country, two only of which are the property of the government. One of these, the *Royal Sovereign*, is a converted ship, the report on which appears in our last year's volume; but the last, the *Prince Albert*, we believe has not yet been launched. The rest are disposed of to different governments. Besides which the following six appear by the same authority to be building at St. Petersburg. Thus it is clear that the Americans are the first who have shown their appreciation of this kind of ship of war, the Russians next, having the above three to be added to the following six:—

Russian Turret Ships.

Names.	Length.	Beam.	Draught of water.	Tonnage.	Horse power.	No. of turrets.	No. of guns and caliber.	Weight of broad-side in lbs.	No. of men.	Remarks.
Not known— C. P. C.	1 200	42	11	1,626	200	2	4 300-pdrs.	1,200	136	Building at St. Petersburg.
	1 do.	do.	do.	1,626	200	do.	do.	1,200	136	
	1 248	43	15·9	2,170	400	3	6 300-pdrs.	1,800	180	
	1 do.	do.	do.	2,170	400	3	6 300-pdrs.	1,800	180	
	1 do.	do.	do.	2,170	400	3	6 300-pdrs.	1,800	180	
	1 do.	do.	do.	2,170	400	3	6 300-pdrs.	1,800	180	
Total 6				11,932	2000			9,600	992	

Of one of the ships, built by Messrs. Laird, in the above list, we find the following opinion from a Liverpool paper:—

We (*Liverpool Albion*) gave a full account some time ago of the trial of a small armour-clad sea-going turret ship, called the *Huascar*, built and fitted with machinery by Messrs. Laird Brothers, of Birkenhead. We have since obtained some particulars of her passage from this port to Brest. She is a vessel of 1,100 tons and 300-horse power, nominal, and obtained a speed of 12½ knots at the measured mile, the indicated horse-power on that occasion being 1,650. This vessel after being completed for sea, left here for Holyhead on the 17th instant, encountered very severe weather on the passage, but proved herself an excellent sea boat, very buoyant, and rolled easily, even when placed

broadside to a heavy sea in the race off Holyhead. She left Holyhead for Brest on the 20th inst., experiencing severe S.W. gales in the Channel, but fully maintained her character as a good sea-going ship, and arrived off Ushant on the 22nd inst., and anchored safely off Brest on the following morning. The *Huascar* had her guns on board—viz., two 300-pounders, mounted in the revolving turret, and two 40-pounders (broadside guns), equivalent to a broadside of 680lb. She had also her full complement of shot and shell, and stores and provisions for some months on board, in addition to about 100 tons more coal than she is intended to carry for ordinary service. The trial, therefore, of the *Huascar* during the late severe weather we had in the Channel, and when loaded unusually deep, is most satisfactory, and proves that armour-clad ships of even small size can be built on Captain Cowper Coles's turret principle to combine speed and sea-going qualities of the first order, carrying at the same time a much heavier and more effective armament than vessels of similar tonnage of any other construction."

We have not ascertained who the proprietors of the *Huascar* are, but it is tolerably evident that our government has been outstripped in the race of construction in respect of this very formidable ship of war. We have comparatively nothing in progress even like America or Russia. In the usual common course of events it is quite evident that such a state of things will not continue long. The fleets of this country will not remain without an appendage so much approved of by other governments if not by our own, and a perusal of the "correspondence" to which we have alluded throws some light, not on the reason why we are not as forward in possession of them as those governments are, but why the Admiralty has ceased to admit of Captain Coles superintending a vessel in course of construction.

There appears so fair a statement of the case in question, in a naval paper, the difference, we may call it, between Captain Coles and the Admiralty, that its reappearance here will contribute towards making this more generally understood, and we shall transfer the substance of it to our own pages as explaining even more than the "correspondence" does. A leading article in the *Hunts Telegraph* of the 3rd of Feb. says:—

The long-pending quarrel between Captain Cowper Coles and the Commissioners of the Admiralty has been brought to a crisis,—we cannot say an end,—by what appears to be the summary dismissal of Captain Coles from a position which he held for some time in connection with the construction of iron-clad turret ships. Captain Coles may claim the credit of being, perhaps, the most indefatigable and persevering of English inventors who have forced their plans upon that much-abused body which is charged to administer the affairs of the British navy. And his perseverance has not been without its reward. * * *

"It cannot be said that the Admiralty after all made any graceful concession to Captain Coles. They rather exhibited the disposition of the man who, convinced "against his will, is of the same opinion

still." However conclusive this practical trial of the *Monitor* and *Merrimac* systems of broadside and turret armaments was to the minds of other people, their lordships were not disposed to accept it as a settlement of the question, and what they did towards conceding Captain Coles's point was done with manifest reluctance, and with but little disposition to help him over the difficulties which he encountered in carrying out the details of his plan. When a ship was placed at his disposal for adaptation to the turret system, it soon became clear, if we are rightly informed, that Captain Coles experienced serious difficulties, which he might have been more readily able to overcome if he had had a practical knowledge of the art of ship-building. He had, in matters of detail, theories which seemed to be pretty well developed in his own mind; but he was not equally clear as to the way in which they were to be put into practice. It is true that on a subsequent occasion the Admiralty called upon him for certain plans and gave him what benefit was to be derived from the services of a draughtsman; but they received those plans as critics as well as judges, and not as co-workers. The object of the committee which was appointed to examine the plans seemed to be mainly to discover their defects, and this seems to have been the policy of the Admiralty throughout the controversy."

"Notwithstanding the external support which the inventor has received, he has had to fight his way against old prejudices and to contend against the opposing influences which it is only natural to suppose have been brought to bear against him by the presence at headquarters of an officer, in the person of the Chief Constructor of the Navy, who happens to be the advocate of the broadside system of armament and the construction of vessels according to plans of his own, and who has, moreover, not yet achieved a reputation by the absolute success of his plan. Mr. Reed, however, has been placed in a more advantageous position than Captain Coles, and a want of success on his part will certainly not be attributable to any want of facilities afforded to him by the Admiralty."

"Although the captain has been a persevering inventor, he has also been an indiscreet one,—that is, if the charge of indiscretion may be imputed to a man who does not first of all consider his own personal interests. When the Commissioners of the Admiralty placed the *Royal Sovereign* at his disposal, and announced their intention of giving the system a full and satisfactory trial, they made a pecuniary recognition of Captain Coles' services which went a long way towards compensating him for his previous snubbings and disappointments. If we remember the precise conditions of the arrangement, there was, first of all, a payment of £5,000 for the patent itself; then, the conversion of the *Royal Sovereign* was to take place under the immediate superintendence of the inventor, who was to receive his allowance as a captain on actual service and full pay, and a further allowance for his special services, besides a royalty for every turret constructed on a British man-of-war. So far his position was immensely superior to that of a host of other inventors who have employed their genius,

wealth, and labour in the perfection of their plans, and have left it to others to reap the reward. But Captain Coles has been officially informed that their lordships have cancelled the order which had been given for allowing him the opportunity of inspecting and advising upon the plans for a sea-going turret ship, which have now been completed, and the reasons assigned are that he has "attacked in the public press the officers of the department," and that he has "made reflections on officers employed under the Board of Admiralty," "instead of cordially co-operating with the Comptroller of the Navy in the endeavour to solve a most difficult problem."

Now, we may remark on this, that it appears by the correspondence that the cause of this measure has been owing to a letter written by Captain Coles to the *Standard* newspaper of the 10th of January, with the view of making his turret system more "generally known," and in which he freely discusses the qualities of the government ships by Mr. Reed, very much to their disparagement in comparison with turret ships built as stated in the foregoing table, in reference to their power of carrying heavy guns, their crews, their expense, their speed, and bitterly remarking on the slow progress of his ships, while those of Mr. Reed are expedited. On the acknowledgment by Captain Coles of the authorship of such letter, the foregoing decision was communicated to him. In reply, he quotes a passage of his agreement with the Board of Admiralty, which grants him "free liberty, by means of lectures, models, publications, and otherwise, to prove the great utility, value, and economy of his invention of shield ships, by way of diffusing and extending the reputation thereof, and to show the value of the same and the numerous ways in which it may be used, worked, and extended for sea-going ships, coast defences and otherwise." This reminder did not however affect the decision of the Admiralty. On which Captain Coles respectfully expresses his regret, saying that "whilst defending my invention and unavoidably making a comparison and criticism of the rival system, I should have been misunderstood as meaning to *attack* or to reflect on the officers of the Controller's department."

No one can read the printed correspondence to which we have referred, without perceiving the great disparagement pointed out by Captain Coles between the two systems, or the reflections on the favourable comparative despatch with which the "rival systems" is followed up. But it would be impossible not to say that if the advantages which Captain Coles had already pointed out to the Admiralty were not seen in that light by the government by the side of their own, that any blame could be attributed to him on that account. Surely he had done his duty towards his country; and although he might desire to see his system extended every where, there was no occasion to extol that at the expense of disparaging another.

In our opinion, Captain Coles might have been contented with matters as far as *his own* government was concerned taking their course, contenting himself with the well known motto *magna est veritas et prevalebit*. For our own part we have always considered Captain

Coles's turret ships as an all powerful addition to any fleet. Such ships forming a large part of a squadron would turn the scale of a general action; while to imagine that the British navy should *all* be converted into turret ships to perform all the services, principal and secondary, that fall to the share of the navy, would be unreasonable, because other kind of ships are wanted. The effect of one of their 600 or even 300-pounders on a ship at the distance of a hundred yards would speedily send her to the bottom, whether plated or not. But what of the small affairs with which our small craft have to deal with? Are they not better left as they are.

We have just met with the following in the prints of the day that is worthy of notice as connected with Captain Coles' turret ships.

Yesterday (5th of Feb.) an opportunity was afforded those who take an interest in the improvement of naval architecture of inspecting a model of Captain Cowper P. Coles' system of masting ships. The model was exhibited at the entrance to Lloyd's Captains' Room, Royal Exchange. It is called the tripod system of masting, from the fact that the trunk of the mast, in addition to its own basis, is supported by two bearers, which gives it the appearance of a tripod. The object of this arrangement is, of course, to strengthen the bearing power of the mast, which it must accomplish in a very high degree. The other advantages of the tripod masts are that in using them a saving is effected in the wear and tear of ropes, the ventilation of the ship is improved, its speed increased, and the voyage thereby shortened, as vessels fitted with these masts are enabled to sail closer to the wind. At the same time, if the necessity should arise, these masts may be cut away as readily as wooden masts. We believe that these masts have been tried by the best of tests—experience—and found to answer very well, while Captain Coles' admitted ability as a scientific naval architect is the best guarantee that he would not attempt an improvement which was not based on sound principles of naval construction.

To call this the "tripod system" we should say is misnaming it. What are commonly called "sheers" are now merely substituted for the rigging of the vessel. The plan is a very old proposal, if we recollect right, by a Lieutenant Shuldham, and has the great advantage of equalizing the action of the sails on the whole vessel, but especially in reference to the lee side. But woe betide her when the log to leeward (on a wind) heels over beyond the vertical position, for the tendency of the whole weight of them is then to capsize her.

By the following extract from the *Hants Telegraph* it appears that the 300-pounder *can* be carried as a broadside gun of such ships as the *Minotaur*.

The *Minotaur* put to sea on Friday week at noon in anticipation of meeting a heavy sea in the Channel, and thus testing the practicability of working our 300-pounder broadside guns in the roughest weather. Notwithstanding the fact that a tremendous gale had been blowing for ten or twelve hours previously, the sea was not so high as had been anticipated; but still a sufficient motive power was given to the waves to cause the ship to roll from eight to ten degrees, and although this

inclination is deemed by the advocates of extreme tests of the broadside firing to be insufficient, it was nevertheless held by those on board to be evident that heavy broadside guns, with the modern appliances which are now being tested, can be fought with ease and safety in all weathers in which it is probable ships would engage each other in.

THE JAMAICA MASSACRES.

In our last two numbers we have seen some specimens of the ignoble part played by the Royal Navy in quelling an alleged rebellion of the negroes of Jamaica. We have seen something of the merciless application of the cat, by our extolled blue jackets, and the wretched negroes will be seen to have experienced about as severe flogging as was ever bestowed on them by their most ruthless overseers of former days when in a state of slavery, which overseers have been aiding and encouraging the impression that these negroes were in a state of armed rebellion. Still the few instances cited here form but a trifling portion, it is to be safely concluded, of the floggings executed by the navy. This is a painful reflection, and it has been increased by the coarse and brutal jesting of the seamen, unheeded by their officers, in the midst of the sufferings of the unhappy negroes who fell under their lash while those floggings were going forward.

The scenes that have been enacted of this nature in Jamaica are sickening enough, hideous enough in their details; but from the high character of the commission which is now investigating them in the island we must expect to learn very many more of the same kind. If that martyr to the cause of the negro, Mr. Gordon, a member of the legislative assembly of Jamaica, could possibly be treated as he is said to have been by the British navy, in the annexed extract of a letter published in the *Daily News* of the 5th of February, need we wonder at the merciless floggings which are related in these pages of the unfortunate negroes. These unhappy people, for whose benefit not a shadow of good will was to be found in the breasts of their European brethren, or in the legislative council, seem to have verified the truth of the old adage which says, "give a dog a bad name," &c., we know the rest. By Governor Eyre they have been *kindly* spoken of as "savages," and they have somehow got the name of "panthers."

There is so much interest attaching to Mr. Gordon's case that we transfer the following from the *Daily News* of the 5th of February: We have already shown the composition of the court martial which condemned him:—

"There is abundant evidence to prove that Mr. Gordon was keenly alive to the injustice continually practised on the people around him. Our correspondent, adverting to the effects this injustice produced,

and to the efforts of Mr. Gordon to provide a remedy, gives the following interesting details concerning him :

“ George William Gordon saw all these things, and they doubtless pressed upon his ardent mind. The men who loved and respected him in the parish of St. Thomas-in-the-East, where he had estates, elected him to a seat in the colonial parliament, and there he had a wide field for redressing the wrongs of his people. But, alas! the Jamaica House of Assembly has been for the last twenty years emphatically a planters’ assembly, where wrongs were heaped like Pelion on Ossa, and from which merely atoms of good have come. It has, indeed, brought destruction down on its own head ; and many good men who were members of it must rejoice over its fall and its departed uselessness. Mr. Gordon had been, in better times, a member of the house, and in latter days, when corruption was rampant, he found time to resume his labours there ; and I am bound, in the cause of truth and fairness, to state that, though disagreeing in many things with him, and disliking his offensive allusions to Mr. Eyre, the governor, he was one of the very few really useful men in the house. Indeed, from his peculiar amiability of disposition, his courage, and reliance on what he would call “ the good cause,” he constituted a very host in himself. Months after months he was seen to neglect his own affairs and give himself up entirely to the people’s cause. “ The poor people of Jamaica are oppressed by vile laws,” was his incessant cry ; whether the idea was an idle dream springing from a morbid mind, or a fact which was undeniable.

“ Mr. Gordon spoke with amazing seriousness ; and he sometimes commanded, as I think he deserved, always admiration for his heroic defence of the rights of the poor classes, and of the just claims of humanity. Himself a very extensive landowner, some of his plantations being of great value, he yet declared against the oppression of the planters, and never failed to give remarkable instances where the laws, in the hands of a sanguinary plantocracy, were used mischievously against the peasantry. He was always in his place, and never failed to expose the slightest deviation from the right path by the ministers of government. Some of his speeches were excellent ; and he was so conversant with the two sides, incomings and expenditure, that he gave no peace to those who sought to fritter away the means of the tax-payers. I shall never forget one of his speeches against state grants to the Church of England ; it was a masterly argument, and I confess I felt almost persuaded that the venerable establishment to which I belonged was, in truth, a scandalous imposition on the colonists ; for, with an expenditure of over £40,000, very little good ever came from its paid ministers. On another occasion I heard Mr. Gordon declaim most powerfully against a bill which sought to deprive the peasantry of their right to sue for trespass committed by planters’ cattle in their cultivated grounds, unless they could prove that their fields were enclosed by substantial fences to keep out the stock. The

bill passed the Assembly, but the Legislative Council would not permit the odious clause referred to to remain.

"Had Mr. Gordon delivered two such speeches in the Commons of England he would have been applauded even by opponents; but alas! in Jamaica his deliverances only increased the malignity of his detractors, who heaped upon him the foulest expressions. I believe at this moment, could he have been safely despatched to some other land, his absence would have been hailed with delight by Mr. Eyre and the men who guided his excellency with their mischievous advice. Mr. Gordon had already been deprived of numerous commissions of the peace which he held in many parishes, and treated with unmerited contumely by Mr. Eyre, for reporting a state of mismanagement in a public department at Morant Bay, which in any English county would have received the best consideration. Mr. Gordon's complaint in some manner wounded the feelings of Rector Cooke, and that gentleman, aided by others, prevailed on Mr. Eyre to degrade Mr. Gordon. From that day all the troubles of Mr. Gordon may be said to have begun. The governor, always a weak, petulant man in the intricacies of diplomacy, was very vindictive in his proceedings; and when he appointed a commission to inquire into Mr. Gordon's charges, he unfortunately selected the very men who were blameable, and who could have given no other decision than they did.

"The humble classes in St. Thomas-in-the-East saw plainly what was at work, and they determined on supporting their friend. They elected him to a seat at the parochial vestry board as a churchwarden. This step threw Rector Cooke into transports of rage, and he appealed to a court of law presided over by Judge Cargill, who, in ignorance of the law, as it subsequently transpired, decided that Mr. Gordon, being a baptist, could not be elected as a warden of the Church of England. Gordon had been well advised, however, and he accordingly insisted on taking his seat at the board where his presence was required to check very serious misappropriations of the public means. On that memorable day he came in contact with his old friend Baron Kettelholdt, the custos of the parish, who was an excellent, good man, but unfortunately for him he succumbed to the evil guidance of the Cooke family, the Rev. Mr. Herschell, and other gentlemen, who hated Gordon. Mr. Gordon was dragged from the board by the police, and thrust aside. The people witnessed all, and they protested against the indignities offered to their friend. Already the governor, unwisely listening to those very men, had degraded Mr. Gordon, and now he was being treated harshly for their sake. In England a riot would have ensued; in Jamaica the negroes walked away exclaiming, "We shall make Massa Gordon put we case before Missus Queen in England." Whether Mr. Gordon did so I cannot say, but some months after he brought an action against the custos, and a jury of selected men gave a verdict for the defendant. Mr. Gordon appealed to the four judges, and a new trial was granted him; one of the judges, in an elaborate judgment, declaring that Mr. Gordon had a right to his seat as a churchwarden, notwithstanding he was a baptist.

"A second trial came on, and the jury gave the Baron a second verdict in spite of the charge of the excellent Judge, Sir Bryan Edwards.

"Again Gordon appealed to the combined wisdom of the superior court, and again he had promise of another trial. But on the 11th of October came the awful intelligence that the peasantry had risen in open riot against the superior classes, and killed many of them. The startling news appalled the community, and a profound sensation of alarm seized every person in Kingston. Mr. Gordon had been ill, and was under medical treatment for many weeks before; and it is known, as a fact, that he had been unable to travel about his own business in St. John and other parishes during the month of September. It will be an important feature in the trial of the unfortunate gentleman by the grossly incompetent tribunal at Morant Bay, and, therefore, I repeat that he was on the 10th of October really sick, and unfitted to undertake a journey of forty miles under a Jamaica sun

"I tremble to think of his sad and awful case. Thoughts crowd on me, and my heart is moved to its depths by the tragic end of the unfortunate man. If ever murder, foul, deliberate murder, was committed under the semblance of law, it was done when Mr. Gordon was deprived of life at Morant Bay. Death's programme would have been incomplete without his execution: and when Mr. Gordon was seized by Mr. Eyre's personal order in Kingston, and taken on board the *Wolverene*, men shook their heads, and declared that Gordon's life was not worth a pin, for Mr. Eyre was his keeper on board, and a member of the executive committee had declared that "if George William Gordon had twenty necks they would be broken." Mr. Gordon was taken to Morant Bay, after Mr. Eyre had visited Port Antonio; and no malefactor condemned for the foulest crime could have been treated with more cruelty and vindictiveness than the unfortunate gentleman. He was shackled, and fed on water and biscuits. On arriving at Morant Bay he was literally *mobbed by the sailors*, and his clothes torn from his back; his shirt was pulled over his pantaloons, and he was jeered and laughed at by *officers and men of the British navy*. In his prison, a vile place, reeking with vermin and filth, he was treated like a wild beast, and worried on every side. His prayers to Heaven were ridiculed, and but for the mercy of that truly good black man, Sergeant M'Kenzie, of the police force, his Bible would have been taken from him!

"The mockery of trial came, and two lieutenants of gunboats and a recently commissioned ensign in a West India regiment formed the court. *Lieutenant Brand* ought never to have taken his seat at that trial, for he had publicly expressed a murderous determination concerning Mr. Gordon in Kingston. Left to three such heads, the fate of the unfortunate gentleman was certain; and Mr. Eyre's wishes were gratified. Mr. Gordon was condemned* to death, and in one hour he was called to prepare to meet his God. On the morning of

* See an account of this in our January number.

his murder there came a black pall over the heavens—fitting emblem of the brutal work to be done on one of God's people. A coat was procured, and substituted for the blanket with which he covered his shoulders, and he was led to his grave. Death did not wholly satisfy the bitterness of his enemy's wrath against him; for, as a fitting example to the people, his body was kept suspended for twenty-four hours, during a perfect storm of rain, and, unblest, he was thrown into his grave, where he sleeps in peace, far away from his wife and friends.

“That the character of Mr. Gordon will be triumphantly vindicated, I entertain not the slightest doubt. Whether the chief actors in the tragedy of which he was the victim will be made amenable to justice, remains to be seen. But that he was foully and designedly put away can no longer be questioned.

The letter from which we take the foregoing is signed L. A. Chamerozow, a gentleman who has been most assiduous in bringing to light these distressing proceedings.

We have alluded above to many cases of flogging by her Majesty's seamen, which will yet be brought to light. Here is an accidental one which is alluded to by a barrister. Among other questions connected with this rebellion the writer asks,—

“Did not Admiral Hope censure some naval officers for excess, and place under arrest a young officer (whom he has reported to the Admiralty) for hanging prisoners because he found some difficulty in conveying them, and flogging a son in presence of an aged father for the avowed purpose of punishing the father?”—*Daily News*.

But more of these things will be known hereafter. And we shall conclude our present paper with the following extract from the letter of a Baptist clergyman many years resident in the island. But first

The Arrest of Mr. G. W. Gordon at Jamaica.

“Cards were sent in to General O'Connor, who received us with the utmost civility and politeness. * * * * General O'Connor informed us that he was a soldier, and nothing more, and that he could not interfere in the matter, and at once perceiving the justice of the worthy general's remark, Mr. Gordon, Mr. Airey, and myself, were in the act of repairing to the executive chambers, when Governor Eyre entered the room, accompanied by his chief adviser and counsellor, Dr. L. A. Bowerbank, Custos of Kingston, and I confess I was not a little surprised at the scene which then ensued. These two functionaries walked rapidly up to Mr. Gordon, who was standing at the corner of the general's writing table, and the Governor, placing himself on Mr. Gordon's right side and Dr. Bowerbank on his left, they both, in somewhat hurried language, made him understand that he was their prisoner. Mr. Gordon assured them that he had just arrived at the general's house for the purpose of meeting any charge which he had against him—that he was on the point of going with

me to the executive chambers, and he placed himself entirely at the disposal of the Government—Governor Eyre then replied that he would not permit him to leave the general's house, or to go anywhere without an escort to guard his person. The scene ended by Mr. Gordon being taken into Dr. Bowerbank's carriage; and accompanied by a few mounted troopers, the custos and the prisoner drove to the Ordnance Wharf, from whence the latter was immediately transferred to the war steamer *Wolverine*, and within half-an-hour after the arrest he was on his way to Morant Bay, at which place a court martial, composed of two naval lieutenants and one army ensign was busily engaged in meting out punishment to the rioters. At that time the functions of the court martial were being exercised so heartily and with so much glee, and the work of *flogging* and *hanging* was so diligently performed, that it actually seemed as if the inmates of Pandemonium had left their dwelling-place and come to earth for the purpose of scourging frail humanity."

The foregoing passage is from a letter of Dr. Alex. Fiddes in the *Daily News* of the 12th of February.

Thus the Governor proved himself ambitious of the work even of a policeman, and followed it up by accompanying his prisoner in his prison ship the *Wolverene!*" which seems to have gained *her name* on board the *Aboukir*, by Mr. Palmer's letter.

Dr. Fiddes' letter will be well read.

The following letter is from the Rev. Mr. Palmer, minister of one of the Baptist churches at Kingston:—

It may not prove uninteresting to you to have an account of my late sufferings; and although the perusal of them may awake painful feelings, yet you will see what I underwent from men in power and authority. I may premise my account by saying that as regards my having any complicity in the late outbreak in St. Thomas-in-the-East, you may rely on me when I say that I neither directly nor indirectly had anything to do with the affair.

I was arrested on the 20th day of October, 1865, without any warrant, and no cause has ever been made out against me, neither to this date can I get any accurate information as to what the charge or charges against me are. I am not conscious of having done or said anything that can be construed into sedition or conspiracy.

I remember having been at a meeting, legally convened by the Hon. Edward Jordan, C.B., Mayor of Kingston, at the Court House, on the 3rd of May, 1865, to take into consideration the circular issued by his Excellency the Governor to elicit facts in connection with the state of the island. At this meeting all the speakers gave expression of their opinions in the form of resolutions, copies of which were forwarded to his Excellency the Governor, the Right Hon. Edward Cardwell, and to Dr. Underhill. This took place about six months before the riot at Morant Bay. A section of the city press has been labouring to make the public believe that this meeting was the origin of the Mo-

rant Bay riot, whereupon I have been apprehended as having complicity therein. I may state that, although I have been living in Kingston for the last twelve years, this was the only time at which I attended and spoke at a political meeting. You will now be in a position to see on what grounds I have been arrested; allow me therefore to give you some idea of my sufferings since my arrest by the local authorities.

On the 20th of October, 1865, between ten and eleven o'clock a.m. I was apprehended by two policemen without any warrant. I was placed for two hours in the city cage, after that removed to the barracks and locked up in the dark cell. Next morning I was removed to the Up Park Camp, and on my arrival there my boots were taken off, my hair was cut, my hands were tied behind me, and then I was locked up in the cell. On Saturday, 21st, I was taken from the camp by a large detachment of soldiers with muskets loaded and bayonets fixed, and marched through the streets of Kingston to the Ordnance Wharf.

At this place the *sailors* were ordered by the master in charge of the boat to lash or pinion my hands behind my back, *which they did severely*, after which we were ordered to get into the boat. While at sea I complained that my arms were benumbed; a temporary relief was afforded me until I got alongside the *Aboukir*, which is the guard-ship portioned at Port Royal. The captain, on my arrival in the ship, ordered me to be placed in irons, and in this condition I remained from Saturday night until Tuesday, the 24th. Whenever I was called by nature to go to the head of the ship, I was taken by a guard, with a rope round my neck, he holding one end of it in his hand, and in the other hand a drawn sword. On the evening of Tuesday, the 24th, I was released from irons, handcuffed, and sent to have an airing on the main deck of the ship. During my confinement in irons I was almost driven to a state of madness. Truly the "iron entered into my soul." I did not know myself, but was wholly insensible. My brother prisoners had to watch me narrowly. They informed me that the doctor of the ship had been brought to attend on me. The fever flew into my head, which continued until the Tuesday of my partial relief from irons, when I had about two hours' airing on the main deck, for which mercy I humbly thank God.

On the 2nd of November I was put on board *H.M.S. Cordelia*, and taken to Morant Bay. I cannot here describe my feelings, but amidst the emotions of my mind I was thankful to God that I was not sent to Morant Bay in the *Wolverene*, for during the time I was on board the *Aboukir* the seamen and petty officers joined in the hope that if the prisoners were to be sent to Morant Bay, it might not be in that ship, and during the passage up it gave me occasional consolation.

I landed at Morant Bay at about half past three o'clock p.m. on Thursday, the 2nd of November. I was instantly marched by a company of *marines* to the police-station, and on my way thither, amidst the taunts and jeers of the *marines*, was shown the gallows, ropes, &c., all prepared for my execution at seven o'clock the following morning.

On arrival at the station we were ordered to answer to our names. At the presence of the justly-dreaded provost-marshal terror seized our minds, and in an instant there arose a cry for mercy which made my blood curdle in my veins.

A fellow prisoner named Goldson was lashed to a post in front of the station, and received *twelve lashes* by an order from the provost-marshal, put on by *a blue jacket with all his might, or, as they say, "in true man-of-war fashion."* In like manner one Samuel Clarke received *twelve lashes*: the following day witnessed his execution.

A Rev. J. H. Crole was ordered to get two dozen, but his body presented such a milk white appearance that the provost-marshal's cheek* was *suffused with a blush of shame*, so that he recalled the order !!! Judge what my feelings must have been at that instant, when I was every moment expecting to be next called out and summarily dealt with.

You may be disposed to inquire what was the cause of these men being flogged. Nothing, nothing whatever. They had not even put down their parcels out of their hands, nor shown the least symptoms of insubordination of any kind whatever before they were flogged. "Verily, there is a God that judgeth in the earth." How Mr. W. Kelly Smith, the reputed editor of the *Watchman*, escaped the wrath of the provost-marshal, God only knows, for he was severely threatened.

Most foully and wickedly was I abused by the provost-marshal, who called me the "damned Baptist parson;" said we were only fit to be "hewers of wood and drawers of water;" were black devils, savages, and used other expressions too disgusting to be communicated.

About a quarter of an hour after this degradation, I was again ordered to go into the parade to witness the executions that were about to take place. I am afraid to describe the scenes I have witnessed, as there is no certainty of this letter reaching you in perfect safety. Such horrors may Heaven permit me never to witness again. The utter disregard for sex or age, to the innocent or to the guilty—the utter recklessness with regard to the taking away of human life, Heaven's own gift—beggars all description. Let me here again particularly observe that Messrs. Sidney Levien, editor of the *County Union*, and Dr. Bruce, although political prisoners, were precluded from witnessing these degrading sights, and were allowed certain indulgences, comforts, &c., upstairs in the police-station, where the provost-marshal resided, who occasionally had them taken out for an airing morning and evening, with a solitary policeman as guard, following at a distance.

For twelve days was I at the police-station, lying on the bare floor and fed like a pig, unable to speak a word to my fellow prisoners—policemen guarding with loaded guns and fixed bayonets night and day, and daily did I look for my execution, although wholly innocent of having done anything constitutionally wrong against the government of her Gracious Majesty the Queen.

* Forget not his name is *Ramsay*.—Ed.

The water at the station which we were compelled to drink was putrid and offensive in the smell. I could not keep it to my nostrils from the strong stench, particularly in the evenings.

Martial law having expired on the evening of the 13th of November, I, in company with eleven other political prisoners, was sent down to Morant Bay district prison, without any document, but only a verbal order of the provost-marshal to the superintendent in charge, Mr. M'Pherson, with instructions that we should be kept apart in the yard of the condemned cells, but which the superintendent refused, alleging that martial law had ceased. He (superintendent) placed us in another department, to be fed with convicts' food, *i. e.*, half boiled and sour cornmeal for breakfast, and yams boiled with the skin and dirt for dinner. In this state I was kept till the 18th day of December. Occasionally on Sunday we had a change of food, namely, a little beef.

During the period intervening from the 14th of November to the 18th of December, being thirty-four days, a portion of which time myself and the others were sick unto death, I was induced to join with them in forwarding a petition through Mr. H. B. Shaw, the inspector of prisons, who on visiting the prison, and seeing our condition, at the request of the prisoners promised that he would forward any respectful petition coming from us to his Excellency the Governor, asking for our release, and which we did through the superintendent, Mr. M'Pherson, with his assurance that he would transmit same to Mr. H. B. Shaw, and promising that he would accompany it with a recommendation on our behalf. With longing eyes and with uplifted hearts have we *in vain waited* until this day. During my imprisonment in this district prison, soldiers with loaded guns and fixed bayonets, night and day, were placed to guard prisoners, including ourselves. I was placed at nights in a dark cell, without a bed to lie on, save a few petticoats of the female prisoners which happened to be in that cell, and which was a fortunate circumstance for me.

I must not forget to mention that every day when a court was held during martial law, and persons were to be hanged or flogged, we were ordered out to witness those very revolting and painful sights. It is true our friends would like to hear and know them, but our unfortunate position at present as prisoners on parole, precludes our doing so. I may, if spared, on a future occasion, be able, when I have received your acknowledgments, and after my trial, give you an outline of the scenes enacted at Morant Bay—scenes of which I was an unwilling and shuddering spectator. The number of victims stated to have been rushed into eternity by several witnesses is reckoned to be between two and three thousand. Districts once densely populated are now desolate, villages swept clean, townships blotted out. It is stated that from Morant Bay to Monklands, a distance of fourteen miles, including Stoney Gut, York, Middleton, Hill Side, Fonthill, Trinity Village, Somerset, &c., there is scarcely a man who has not been catted, and that from Morant Bay, through Manchioneal to Portland, there are very few black inhabitants left. It would be well for a census to be taken

of the inhabitants of St. Thomas-in-the-East, otherwise a correct statement cannot be arrived at. * * *

I was taken out of prison on Sunday evening at six o'clock, by a writ of habeas corpus. On Monday morning, after I had reached home, a guard was set over me until Wednesday, the 20th, when I was taken over to Spanish Town, and appeared before Allen Kerr, Esq., one of her Majesty's judges in this island, and there I entered into bail in the sum of £300, Rev. J. M. Phillippo in the sum of £100, and myself in the further sum of £200, to appear at the Court of Commissioners, to be held in February, but which has since been changed to 23rd of January, four commissioners, four judges, and eight jurors being the persons to try me.

I left the prison suffering from fever; in fact, severely ill: which illness I had contracted during my incarceration; for whilst there I suffered from fever, ague, vomiting, spitting of blood, dysentery, in short, everything that bad air, bad food, bad water, and bad treatment are calculated to produce on a frame not very robust, and not at all accustomed to such things. Even now I am a constant sufferer from fever and other bodily ailments, and to the mercy of God must I ascribe my present existence.

I am, &c.,

E. PALMER.

P.S. I may state that I am just from my solicitor, and he tells me that up to this moment he has not gleaned any information as to what the charges against me are, the Attorney-General informing him that he is instructed by the Queen's Advocate-General not to disclose them.—E. P.

We must reserve comment to make room for the following:—

February 7th, 1866.

SIR,—I cannot refrain my sincere congratulations on the noble and just spirit in which you have taken up the cause of the ill-treated and shamefully calumniated negroes of Jamaica, in the January and February numbers of the *Nautical*; and I should conclude that every honourably minded naval officer would join you in the intense expression of indignation and disgust at the infamous stain which has been put on the "Right Arm" of Britannia's power by the infliction of the British knout on guiltless men and women through the instrumentality of our seamen! Where shall degraded *blue jackets* and their yet more criminal commanders hide their faces on their return to their country? If the London draymen chastised publicly in the streets of this great city the Austrian field-marshal for cowardly stripes inflicted on a female, by his orders, what shall be the recompense of an English governor who has so tortured the bodies of two hundred coloured women living under the mild sceptre of a British Queen? Is such a governor a just representative of the righteous rule of our beloved sovereign, or is he no more than a caricature of Victoria's aspect towards her colonists? Are they not *all*, whatever their colour or social position, entitled by the laws of England to protection from tyranny and wrong? If other principles prevailed in

her councils none are safe from the inflictions of cowardly cruelty in any part of her dominions. Various inquiries rush into the mind on the review of the recently revealed horrors—one of the chief is, will not the governor be liable to capital punishment for having caused the execution of Mr. Gordon without just trial? In the *Times* of the 15th of January I find the following important paragraph on this subject:—

“The opinion of Mr. Edward James, Q.C., M.P., and Mr. Fitz-James Stephen has been given on a case submitted on behalf of the Jamaica Committee. In reply to the question, what is the term martial law, and what is the legal effect of a proclamation of martial law? They enter into a detailed account of martial law, and the senses in which it has been used. They lay down the following principles. 1st. Martial law is the assumption by officers in commission of absolute power, exercised by military force, for suppression of insurrection, and restoration of lawful authority; the officers in commission are justified in any exertion of physical force, even to destruction of life and property, and in any manner that may be required for this purpose; but they are *not* justified in inflicting punishment *after* resistance has ceased and after the ordinary courts of justice can be re-opened. With regard to the acts of the Jamaica Legislature, under which governor Eyre seems to have acted, they hold that it does not create any new power. The legality of the conduct pursued towards Mr. Gordon depends on the question, *whether it was necessary* for the suppression of open force and the restoration of legal authority to put him to death. They see *nothing whatever* in governor Eyre’s despatch which affords any ground for thinking that such could have been the case. They found that Kingston was exempted from martial law, and this fact shows conclusively against governor Eyre that in his opinion no necessity existed for the assumption of arbitrary power then and there. The fact that Mr. Gordon was in *lawful custody* shows that he was at all events disabled from further mischief, however guilty he might previously have been. It would perhaps be too much to say that no conceivable state of affairs could justify the treatment he received, but no such facts are mentioned in governor Eyre’s despatch. As to the definite powers of the officers sitting in court martial at Morant Bay, they are of opinion that they had *no power at all as a court martial* and that they could justify the execution of Gordon *only* as they could *show* that step was *immediately and unavoidably necessary* for the preservation of law and order. They had no right to punish him for *treason* even, if he had committed it, their province was to oppose force by force, not to punish crime.”

Surely then all the actors in that infamous murder of a guiltless man, one, who had shown himself far more fit for the governorship of Jamaica than the panic-stricken governor Eyre, should be brought to a just tribunal for their complicity in such a crime. A crime against the majesty of England, and of English laws. But another question arises irrepressibly in connection with the wretched misgovernment of

this poor doomed island. Why did not Mr. Cardwell instead of sending the letters of Mr. Gordon and Dr. Underhill to that *wise! parental!* governor (a measure sure to create his malignancy against his *just* censurers,) despatch trust-worthy men to inquire into the state of the island, and to report to him the true condition of the free negroes? The neglect of such plain duty has occasioned the writing of a lesson deeply died in blood, for the instruction of all future colonial secretaries. It is most painful to reflect that Mr. Cardwell should have thus signalized his name in the annals of the nineteenth century.

Trusting with you, that for the honour of our Queen and country we shall as a nation disown, and punish the tyrants and destroyers of our guiltless fellow subjects.

I remain, &c.

ANTI-CRUELTY.

To the Editor of the Nautical Magazine.

OUR MERCHANT SERVICE AFLOAT.—*Hints to Passengers.*

London, February 7th, 1852.

Mr. Editor,—Among the numerous articles which have appeared in your valuable periodical, with the view of bringing into notice the unsatisfactory state of our merchant service, I find that in your number of December 1858, there appears a memorial to her Majesty from the officers of the mercantile marine, a copy of which I forwarded to you at that time. However, nothing effectual could be done for them, and as there are still so few nautical men in parliament, and those only of the Royal navy, there is no one there, who can, from personal experience be aware of the defects and requirements of that service, and the disadvantages under which so numerous and valuable a class of men are employed. The consequence is that nothing whatever has been done towards remedying their grievances, and they are now even in a worse condition than when you took up the subject in 1857-58.

The repeal of the navigation laws, and the consequent pressure of competition from foreign shipping, was then explained as the cause of diminished profits, as forcing on a dangerous system of penny wise economy, resulting in undermanning, overloading, scanty outfitting and unlimited employment of foreign seamen, followed as a matter of course, by an increased number of wrecks, disasters and abandonments at sea. And now that steam vessels have so much increased that the sailing ships are almost deprived of that once profitable employment the passenger trade; and again that the facilities also of borrowing money, induce many persons of no capital or pretensions to set up as shipowners, but who press on a wild and reckless competition and trust to the underwriters to stand all chances, the result is

that, by the last Bombay papers, no less than 200 British ships, comprising about 120,000 tons, were lying at that port, the greater part of them unable to obtain freights, and many have been lying there *idle* for twelve months, with freight nominally at thirty shillings per ton. The same ruinous state of affairs exists at Calcutta, Singapore, and the ports of China.

Some amendments in the Merchant Shipping Act, if carried out some years since, as recommended in the *Nautical*, and urged by the friends of seamen, would have prevented many of these evils. But things have now come to such a pass by the *laissez faire* system, that any idea of bettering the condition of the merchant service and the unfortunate officers and seamen who are in it, seems utterly hopeless!

In the memorial to her Majesty above alluded to, the first article says—

“The efficiency of the merchant service is a subject of national importance.”

“To insure that efficiency the officers must be men of education, character and intelligence.”

Let us now consider how these gentlemen, these officers of our merchant service are remunerated for their services, bearing in mind that there is no pension or provision of any kind made for them when ill health or advanced age renders them unfit for further sea service. Taking the very best class of ships of our merchant service, the commanders receive a regular pay of £10 per month and an allowance on the freight, varying from 2 to 4 per cent., so that it would require a ship to make £3000 freight out and home to give the captain £120 at 4 per cent. A small per centage is also given on the profits when troops or passengers are embarked, after all expences are paid; so that for all the toil, anxiety, and responsibility, of taking charge of a valuable ship bound to an unhealthy climate, an officer in command of her could not get above £300 for his voyage of ten or twelve months. It is certain therefore that he can have nothing to look forward to in age and when he is worn out, but poverty. Such is the present condition of the commander's station in the general merchant service of England!

Now sir, as the public of this maritime country, in general are utterly ignorant of this state of things, it should be as much as possible brought to their notice in order that parents may not be attracted by so ungrateful a service and induced to bring up their sons with false hopes of obtaining an honourable independence in the mercantile maritime service of the country when so many have a natural turn for a sea life!

While steam however, is making such a wonderful revolution in this maritime service, it is worth while to consider also, whether there is not still a fair opening here for employment of some of those men of education and intelligence alluded to. Such an opening certainly may be found in those large contract steam companies, which, to their credit be it said, are working on very different principles to those of

the general merchant service. These companies are bound by their contracts to send their vessels to sea in the most efficient condition—moreover, they are *not known at the insurance office*, and consequently there is every reason why the managers should send them to sea in a state fit to encounter the worst of weather! No doubt the best of officers of our mercantile marine find their way into these services, and according to the present proceedings, they are liberally paid. Moreover, as they have got into a regular system of bringing up their own officers, very few casualties occur, and passengers have, in all these companies, a very good security both of their personal safety and a fair and liberal treatment.

All this is as it should be. But, unhappily, the larger portion of our passengers must still proceed to their destination in sailing vessels, and they are unable to choose their time, and therefore, to these it may be useful to offer a few remarks, which, it is hoped may conduce to their personal safety and comfort, especially as the system of economy in fitting out ships for sea is carried on to so dangerous an extent, and there are no restrictions to it, nor effective inspections are enforced.

In the first place, before taking a passage at an office, a would be passenger should bear in mind that the greater part of the ships advertised for India and Australia, are made to appear in the eyes of the public as ships of about double the size they really are; and this because the larger the ship the more comfort. But the public does not know that *the largest ships are not the safest*, because they are totally unacquainted with the subject, and are led to believe that they are, and hence the cause of attracting their attention by large ships. To show the fallacy of such advertisements, let us take a few examples at random and see the difference between the advertised and real size, as shown by Lloyd's Register of Shipping. The following names appear in the *Times* of this month, with their burthens as advertised:—

Ships.	Burthen.		Dimensions.	
	Advertised Tonnage.	As appears by Lloyd's Register.	Length.	Beam.
Names.	Tons.	Tons.		Ft. In.
Vernon	2500	1319	210	38
Pegasus.....	2400	1183	183	38
Empress	2500	1267	181	37
Lady Octavia ..	2400	1202	200	34 7

Much greater exaggeration than these may be found in the same paper. In one case a ship is set down as 2339 tons register, and 5000 tons burthen! Now what object can there be in making out a ship to be of this enormous tonnage but to sound large and grand! And yet any nautical man would see that even the *registered* tonnage is so large as to add materially to the risk of safety, unless this ship

be officered and manned in a very superior manner to the usual practice of the present day.

The entry of ships on Lloyd's Register not being compulsory, there are many which are bought from the Americans, or built in New Brunswick, that are not entered there, as they would be at a very low figure. Although beautiful models and fast sailers, they are *badly fastened*, and are intended to last only a few years. When people are looking out to take a passage abroad in the above description of ships they should always first go on board themselves, and if possible in company with a nautical friend, see whether the ship be likely to answer their expectations. Before determining on a ship they should ascertain when and where she was built,—who is to command her,—what dead weight she is to take on board, and how she is likely to be manned and fitted for sea. Ships of 1000 to 1200 tons are the most to be preferred, supposing them to be unexceptionable in the above particulars.

If the summer months could be adopted for the passage most of the Blackwall ships can be depended on. But in the winter months the greatest scrutiny should be exercised as to whether the ship is well provided with *storm sails* and *winter poles*, and whether the captain is well known for that most essential part of his duty "keeping a clear deck for working ship," preparatory to that worst of weather which is most likely to be encountered before clearing the Channel.

There is also a dangerous practice with owners in these days, of running on with old ships far beyond the time for which they were intended to go to sea. Few people think of *breaking up* merchant ships, and so they often run on till they actually sink at their work. The *Owen Glendower* and *Fairlie* are two cases of this kind that have lately foundered from that cause, though fortunately the crews were rescued by other vessels. Ships built on the banks of the Thames, that may be considered the best, are not intended to run on above fourteen years without requiring a very substantial repair. They may then be considered safe for four years more, but even these will soon begin to complain about their decks and their upper works. After twenty years' service, however, few British built ships are fit to go to sea, particularly on long voyages, and very old and unseaworthy vessels should be prevented from fitting out for sea. But, alas, in this free money making country of John Bull there is, no law existing to that effect. Still there are leaky ships which are built in India, that often last far beyond this length of time, the most remarkable instance of which is, her Majesty's venerable ship the *Tortoise*, which was serving the purpose of a guard and store ship at Ascension up to last year. She was for many years in the East India trade, sailing under the name of the "*Sir Edward Hughes*," and was built in India as long ago as the year 1787.

With these remarks upon the present state of the merchant service, offered with no other view than the hope that they may benefit those who are still about to encounter the perils of the sea, I beg leave to subscribe myself your old friend and correspondent,

TRIDENT.

A FOREIGNER'S ACCOUNT OF US:—*The Trinity House.*

(Concluded from page 64.)

Smeaton mentions another instance which shews what is passing in the minds of some of these light-keepers. A shoemaker was entered as a light-keeper of the Eddystone. While going out the coxswain of the boat said to him, "How is it, master Jacob, that you are going to shut yourself up in that tower, when you can earn on shore half-a-crown or three shillings a day, while a light-keeper there gets scarcely ten shillings a week." "Every one to his taste," replied Jacob, "I have always liked to be independent." It is quite true, however strange it may seem when applied to a life of seclusion and a sort of anchorite regimen, what constitutes really a prison is the moral confinement. Here, on the contrary, the mind is free, and on the wild surface of the ocean it conceives all kinds of odd things. There are moreover some natures that cannot broke the tiring monotony of the same scenes, and the external impressions. About a mile and a quarter from the Land's End, on a group of islets composed of granite is a lighthouse constructed in 1793, called the Longships. The rock on which it stands is conical, and named the Carn Bras, which rises to the height of forty-five feet above low water. In winter the rock and its building disappear sometimes for several seconds in the waves, which rise many feet above the lantern. One day the sea lifted the covering of it and extinguished the lamps, and could not be got rid of but by much exertion. Another circumstance contributes much to the trying nature of the locality. Underneath the lighthouse there is an opening through a long crevice at the extremity of the rock. When the sea is boisterous the noise occasioned by the confined air inside of it is so great that the light-keepers can scarcely sleep for it. One of them was so much terrified by it that his hair became white in the night. There are besides this some other roaring caverns about the Lizard and the Scotch Coast. Melancholy as this situation is there are some who like it, for one of the light-keepers has lived in it for nineteen years.

One day, in 1862, two black flags were seen flying at the lighthouse, evidently meaning distress. What was the matter? One of the three light-keepers had inflicted a wound with a knife on his breast. His companions had endeavoured to staunch the blood with a piece of cloth over the wound. Three days were passed thus before assistance could be obtained, and the weather was so bad, the sea so high, and the landing so dangerous that they were obliged to get the wounded man into a boat by a swinging movement. The greatest care was taken of the sufferer, but he died soon after getting on shore. The jury who inquired into the case declared that he had committed the act under temporary mental alienation. It is by no means surprising that men placed in such frightful situations lose their mind in frenzy of fear.

But what adds most to the horrors of this imprisonment is being

compelled to live with men whose tastes and habits do not accord with one's own. One of the light-keepers of the Eddystone having landed on the rocks, out of mere curiosity, one day, was asked by another how he could be happy with such a life. "Oh, quite so," he replied, "if we could only enjoy the pleasure of conversation : but it is now above six weeks since my companion and I have exchanged a word. At present there are three together, and so more chance of finding conversation ; but the perpetual contact with certain quarrelsome characters, added to their commonly frequenting the same domicile along with the *ennui* of confinement, sometimes produces strong feelings of hatred. It is not long since the Trinity Board had to decide between two light-keepers who could not endure each other. One of them was dismissed as the only means of settling matters. Their condition, however, has been much improved by the Trinity House. Before they were under this Board the most frightful calamities used to occur in lighthouses.

One day a little barrel was found by some people on the beach containing a bottle, which enclosed a message from the sea ; it was on paper, and on the barrel were the words, "Open this and you will find a letter." The letter ran thus :—

"Smalls, 1st Feb. 1777.

"As we find ourselves in a dangerous and despairing position, we hope that Providence will guide this letter to you. We beg of you to come to us before the approaching spring ; otherwise we shall all perish. Our supply of water is nearly exhausted ; we have no more fuel, and our building is in a most melancholy condition. I need not say more than that I am

"Your unfortunate humble servant,

"To Mr. Williams.

"HENRY WHITESIDE."

This gloomy message came from the Smalls, situated in the midst of the sea off the Isle of Skomer, on the South Coast of Wales. On this group a young man named Whiteside, a manufacturer of violins, spinnettes, and harps, but intended by nature for enterprise, assisted by a company of Cornish miners and one or two ship-carpenters, had managed to build a lighthouse. It would be a long story to relate the dangers which they underwent, and the difficulties which they overcame in this contest with the elements. And yet abandoned and forgotten, this same Whiteside was left to die of hunger in the same tower with which, so to speak, he had outlived the storm. A new lighthouse in stone, finished in 1861, now stands on the Smalls, a beautiful structure, on scientific principles, that leaves the old building of 1776 far behind, but this nevertheless did good service. Many sad accounts are given of light-keepers being deprived of all resources, and if we are to believe them all, that they have been obliged to drink oil and eat candles. Even these they would have to be careful of, for above all it would be necessary to think of the light first.

The light is of course the grand object of the tower, and it is to preserve it that the light-keepers, like the vestal virgins, are devoted to

their duties. Whatever may happen, and however the weather may turn out, the light should burn steadily through the night, and through every night of the year. Here is the first clause of their orders: "You will light the lamps every evening at sunset, and you will keep them clear and unsullied until day-light." To them this is the law and the prophets. In fact the light is doing its duty, and is as constant as a star of heaven. On this condition, but on this alone, the men are well paid, well fed, and well dressed: they have a pension when old, and which in certain cases may be continued to their widows: besides which a life insurance places their family above want. They are supplied with books and medicines, and certain principles of morality are expected from them, with which they imbue their wives and children; but above everything they must attend to the light. They have also a flag placed in a well-selected part, and it is the last thing they are to care for in the event of any catastrophe.

It is two or three years since a lighthouse was built on a point called the Double Stanners, between Lytham and Blackpool, for some time threatened by ruin from the invasion of the sea, which is gradually gaining on this part of the coast. In vain the workmen endeavoured to preserve the building by additional pillars round its base, and fortifying where they could against the effects of the sea. The light-keepers observed one night the tower vibrated more than usual. The next morning they found that a portion of the facade had disappeared, and that nearly the whole foundation of the tower was undermined by the sea. They removed their furniture, but forgot the apparatus for lighting their lamps. At nightfall they were surrounded by the tide, and the wind was so strong that it was feared their craft would not hold on by her anchors till day-light. But the light never burnt clearer than it did on that night. In the morning a heavy squall swept away the tower, but the light-keepers came off with the honours of war: the light had burnt to the last moment.

I was desirous of passing a night at the Eddystone, but unfortunately for me this is a privilege granted to no one. It is not that strangers interfere with the duty of light-keepers, or by their walk get in the way of the light. Besides, what is there to be seen? The apparitions of vessels gliding by the tower, the forms of men looking anxiously from the tower, at one moment lighted up, and at the next disappearing in the darkness. So I left the tower some time before sunset and landed at Plymouth, not without many a look at the Eddystone on my way as it receded in the distance. This herculean work has already stood above sixty years. Smeaton's work was followed by gigantic productions in the line which he had commenced. On the Scotch coast, at twelve miles from the islands, is a rock which had always been an object of terror to seamen. The monks of Aberbrothwick who dwelt near it, had marked it by a beacon carrying a large bell, which was kept ringing by the motion occasioned by the waves, especially in bad weather. This was first called the Inch Cape Reef, but obtained afterwards the name of the Bell Rock. This system of placing a bell on a rock is but partially successful, for wreck

on wreck followed, and among them a seventy-four gun-ship of the Royal Navy, the *York*, with all her crew were lost on it. The commissioners of Northern Lights determined at length to construct a lighthouse on the same principle as the Eddystone, and appointed an engineer, Robert Stevenson, to direct the works.

Stevenson landed on the rock on the 17th of August, 1807; but as it is covered with twelve feet of water by the tide, his men were only able to work but a very few hours between ebb and flood. One day the engineer and thirty-two masons were accidentally exposed to the danger of being drowned, by the place getting suddenly flooded. The vessel attending them broke from her cable, and was drifted away from them, and another expected did not arrive. Robert Stevenson was desirous of addressing his terrified men on their forlorn condition, but could not, for his mouth was dry, and his tongue stuck to the roof of it. When washing it with a little salt water, on turning round, he had the happiness of seeing a boat approaching to their relief. The tower, in October, 1810, spread at its base, and tapering to its summit like the trunk of a tree. The landing on the rock is on an iron jetty, from which a bronze staircase leads to the door raised at a considerable height from the base. The light-keepers assert that the sea sometimes rises to the height of thirty feet above the tower. It has six rooms and two large bells which are rung in foggy weather. In the sitting-room, to which the keepers retire in the day time, is a bust of Robert Stevenson.

The four light-keepers of the Bell Rock Tower are married men with families. A melancholy time for them when thus separated in bad weather during the greater part of the year. Byron says that absence strengthens the affections of the heart. I have seen a young damsel, newly married to a light-keeper, find her way over dangerous rocks of the shore every evening to see the light of his tower burning at a distance, which was standing surrounded by the sea. Having done this she returned with a lighter heart to her home. All was right; the light was burning, and she wished him a good night.

Another ocean light is the Skerryvore, one of the boldest of works of this kind. This great rock, as the name implies, is the middle one of a group between the islands of the west coast of Scotland and the north of Ireland. Ordinary tides made the upper part of the reef just awash with the surface, occasioning a frightful sea. Still it was on this barbarous rock that Alan Stevenson, the son of Robert, in 1838, undertook to erect a lighthouse. The first of the works was washed away by the sea on the 3rd of September, 1838. But a new barrack was constructed, in which the architect and his thirty workmen were housed at forty feet above the rock, full often covered by furious seas. How many days and nights they worked in this trying manner! The sea would often not allow them to descend to the reef from their aerial prison, while they could only fix their eyes on the shore from whence they obtained their supplies, wishing for a change of weather that would let them go on with their work. So high was their dwelling place that more than once in the night they were alarmed for their

safety by the sea washing up and falling on its roof. On these occasions the house would tremble on its pillars, the water would find its way into the door and windows and twice the men rushed from their beds fearing it was their last. However, on the 21st July, 1842, Alan Stevenson had succeeded in building a granite tower 137 feet high on the rock, and in February 1844, a light for the first time was seen on the dangerous group of the Skerryvores. This building is a block of masonry six times larger than the Eddystone. The construction of these lighthouses in such dangerous positions is the most glorious triumph of British architecture. The age of chivalry is not extinct. Surely the heroes of these days are engineers and artists, who, with a determination far above military courage wage war with the elements, that people of different countries may frequent each other's shores and extend the benefits of navigation and commerce. Old Ocean himself must admire these wonderful works, and were he personified might exclaim with the poet—

“Great must I call them, for they conquered me.”

A Committee of Inquiry into lighthouses in 1861, published a voluminous report on those of Great Britain. The members of it certainly accomplished their task most conscientiously. They not only made the tour of their own coast, but, enriched their work with information from France and Spain. In their way (by letter) they have examined 1,184 witnesses, and obtained information from thirteen foreign countries. The lighting apparatus naturally claimed much of their attention. All kinds of modes of lighting have been employed in Great Britain, and the last coal fire, that of St. Bee's lighthouse was not extinguished till 1822. Oil is at present the only source of light, but what a difference there is in the manner of using it. There are two kinds of lights, fixed and revolving, appearing, disappearing and reappearing to the mariner like an intermitting star. Even the colours vary and assume all kinds that are found in the prism, by red, green, white and blue. There is a considerable difference also in the arrangement of the lamps.

There are two systems of lighting, called catoptric and dioptric, the former being by reflectors and the latter by lenses of glass. The former is the most ancient, but has been somewhat set aside of late. The apparatus in lighthouses at present, mostly consists of a central focus formed by an enormous crystal lens which sometimes costs as much as a hundred guineas. Gas, and also the electric light have been tried with more or less success. The fact is, that in England, as in other countries, lighting the sea is in a state of transition. The Trinity House has secured the services of a *savant*, Faraday, to guide them in the path of improvement.

Another circumstance struck the members of the commission, which was the want of unity of system. Of the 357 lighthouses of the United Kingdom, 197 belong to the three Boards of England, Scotland, and Ireland, and 160 to local authorities. Who could expect perfect harmony in such a division of powers. In France things are

different. The lighthouses are lighted and the lights are extinguished at a time of day determined by a central organization. The volume of flame and the quantity of oil to be consumed is managed with military precision. Here the governing power is in one authority. This authority seems to have attracted the attention of the British Commission, and they would have liked a similar one on the other side of the channel. Their views seem hitherto, however, to have met with but little approval among a people too jealous of their rights to give up the management of their own affairs. Liberty, however, is deceived sometimes—she is the daughter of humanity—she can always repair her mistakes, but once lost who shall restore her. The English have a right to be proud of what they have done from generation to generation in the lighting of their coasts. Without any assistance from their government they have built most magnificent lighthouses, veritable temples to the sea, in the most difficult places, which cost from 75,000 to 2,000,000 of francs. Every day of the year, at sunset, they produce by unseen hands, 404 splendid lights ashore and afloat, which apprise mariners of the limits of the sea, and which collect the sails arrived from the four quarters of the globe under the radiant symbol of peace and the brotherhood of nations.

ON THE CAUSE OF WRECKS ON THE BLACKWATER AND ARKLOW
BANKS of *Vessels bound from Liverpool to the Southward, and
How they may be avoided.*

Sir,—I need make no apology to you for this short letter. I address you as the Editor of the standard work on nautical affairs, as a man of humanity, who, in common with every one, must deplore the loss of valuable lives and immense wealth; and as a seaman who knows practically what we only know theoretically.

The principle cause of shipwreck in St. George's Channel arises from the want of knowledge of the tides, particularly of that part where they mostly occur. In order to show this I cannot do better than give an extract from a small book published by me, and kindly edited by the late Captain Beechey, (who was employed by the Admiralty for some years in examining the tides and soundings of St. George's Channel). It was published in 1851; and reprinted several times since. In it he says:—

“In the Irish Channel experiments have shown that notwithstanding the variety of times of high water throughout the Channel, the turn of the stream over all that which may be called the fair navigable portion of the Channel, is nearly simultaneous; that the northern and southern streams in both Channels [St. George's and English] commence and end in both Channels, in all parts, (practically speaking,) at nearly the same time, and that time happens to correspond nearly

with the time of high and low water on the shore at the entrance of Liverpool, and of Morecambe Bay, a spot remarkable as being the point where the opposite tides coming round the extremities of Ireland, terminate, so that it is only necessary to know the time of high water at the above mentioned places to determine the hour when the stream of either tide *will commence or terminate in any part of the Channel.*"

Now, at the entrance of St. George's Channel, about Tuskar on the Irish side, and St. David's Head on the Welsh coast, the charts show high water full and change about six o'clock, while at Liverpool it is high water at full and change at eleven o'clock, so that it is clear that while at the sides of the Channel the water is ebbing, in midchannel it is flowing for five hours and (by the same authority) at the rate of from three to four knots per hour. A shipmaster not knowing this, and thinking that the stream in midchannel is the same as at the sides, or, not thinking at all, is meeting a contrary stream striking him on the port bow, causing a leeway carrying him out of his course to the northward and westward, or, in other words on the Blackwater bank. The captain who has steered a true straight course from Holyhead to Tuskar, immediately there is the compass, (the most fertile excuse for the loss of all ships) and as the compass is generally lost or spoilt with the ship there is no way of denying it. In fair weather the leeway may be corrected by the light, but in foggy weather the light is of no use. What are the light ships for? My own experience; living on the sea shore, within a mile of one of the most powerful lighthouses in the kingdom, taught me that in a fog the lighthouse and a penny dip are nearly of equal value for light. The bell is only heard a short distance off, say a mile or very little more; shewing from my own experience how little benefit is conferred by either sight or sound.

There remains then, only one means of ascertaining the safety of the ship, and that is SOUNDING. The shipmaster says, I cannot use the common lead. I have to stop the ship's way, which in a fog and narrow sea is dangerous. So it is. Then use a machine, Massey's has been long in use, and found to be correct. But it requires handling almost as carefully as a baby. The machinery of it is delicate and is exposed outside of the machine, and it requires the greatest care in throwing it overboard, or drawing it in. If one of the flies receives any damage by striking the ship's side, or a rocky bottom, the correctness of the machine is gone!

Fortunately another means for quick sounding as been lately found* called the "*Liverpool Sounding Machine*;" it is extremely simple; the weight is perforated, admitting the water to pass through it, and the machinery is placed inside of the weight, so that the works cannot be injured by any external violence, either by striking against the ship's side, or from anything floating in the water, or even a rocky bottom. It may be thrown overboard without any care and drawn

* By Walker and Son, Opticians of Liverpool.

on board as carelessly. By experiment it has been found to reach bottom at nearly 40 fathoms in a minute, and it may be drawn back in not much more time, so that with ease a sounding of that depth may be taken and read off in less than five minutes. The charts clearly show that in the neighbourhood of those two banks (the Arklow and Blackwater), no vessel is safe for half-an-hour when she reaches the depth of 30 fathoms. Therefore, with this Liverpool lead no vessel need be lost on account of want of light. The machine is perfectly correct, having been officially tried, by order of the Lords Commissioners of the Admiralty, and being favourably reported on, has been sometimes adopted by them for the use of her Majesty's navy.

I am, &c.,

A. W.

"To the Editor of the Nautical Magazine."

AVOIDING A STORM.

In former numbers of this journal, when the "hurricane theory" was just established and began to be understood by our seamen, we took many opportunities of explaining it to the readers of the *Nautical*. We have even shown how ships have made use of a storm in running from one port to another, by taking care to start on the favourable side of the centre or focus, and when that centre was travelling in a direction favourable to her course. Indeed, we have even shown how a ship has looked into the troubled district of a storm, standing into it a short distance, knowing what she had to expect by standing on and turning round and leaving it quite satisfied that she was better out of it than in it, although this lay in her course through the China Sea. Avoiding a storm, especially in the Indian Ocean, is now no novelty, but doing so off the approaches to the European shores of the Atlantic is not a common event, and we therefore preserve the following account of the *West Indian* doing this as appears by a brief letter in a recent number of the *Times* newspaper.

Avoiding a Storm.

London, January 26th, 1866.

Sir,—In connection with the loss of the steamers *London* and *Amalia* on the 11th inst., the following brief extract from a meteorological register recently transmitted to the Meteorological Department of the Board of Trade by Captain Kiddle, commander of the steamship *West Indian*, homeward bound from the West India Islands, has a peculiar interest.

There appears little reason to doubt that, by the correctness of his judgment and his judicious conduct in heaving to on the night of the

10th inst., Captain Kiddle avoided running into the weather that proved fatal to the *London* and *Amalia*.

I am, &c.,

J. H. B.

Date.	Lat. N.	Long. W.	Winds.	Force.	Noon. Bar.	Alt. Ther.	Sky at Noon.
1866	° /	° /			in.		
Jan. 9	47·33	30·15	W.S.W.	6	30·150	55	c.g.u.
" 10	48·4	25·10	N.b.W.	8	29·700	56	c.g.q.h.u.
" 11	48·15	22·35	N.	6	30·170	55	b.

"Hove to all night on the 10th to allow a cyclone to cross the bows; barometer fell to 29·50, with the wind at North, when I stopped engines at 8h. p.m. At 9h. p.m. it commenced to rise, and the wind veered to N.E.b.E.; towards morning it backed again to North."

Captain Kiddle, the commander of the *West Indian*, being an old West India voyager, showed "judicious" management in avoiding this storm, and a captain of a ship who is no stranger to the theory will at once see his reasons for proceeding as he did. As we have pointed out in the *Storm Compass*, he will take a pencil and on the *caf* of his watchbill, or back of a letter will make a circle thus:—



placing arrow heads at the cardinal points as we have, to represent the course of the wind *at* those points. Thus South of the centre he marks it from West (because in this northern hemisphere the hurricane wind on that side of the circle in which it blows is always West) and marks the other points accordingly.

Now, how was the wind with the *West Indian*? It was first from W.S.W. On consulting the circle it will be seen the centre then bore from her N.N.W. Thus, Captain Kiddle, knowing that in the latitude he was in, that the centres of these hurricanes travel something to the northward of East by heaving to lets it pass northward of him, and on the 10th finds the wind (which must have gone through the changes of West, W.N.W. and N.W.) to come now from N.b.W., showing that the centre was E.b.N. of him, that in fact it had passed him, and on the 11th, having the wind at North, that the centre was due East of him. But had he kept on his course, especially if he had been a day's runs further East he might have found himself with easterly gales and suffered from want of caution and forethought. But Captain Kiddle knew better and spared his ship distress and his passengers inconvenience and delay.

We understand the same ship had an accident after this to her rudder, when about a hundred miles S.W. of the Fastnet—but after six days of unceasing exertions the ship was safely navigated to

Queenstown. In an early volume of this work will be found a variety of temporary rudders.*

This same hurricane was the cause of the wrecks of Torbay to which we have already alluded to in this number.

ROYAL NATIONAL LIFEBOAT INSTITUTION.

On Monday, the 1st of February, a meeting of this institution was held at its house, John Street, Adelphi, Thomas Baring, Esq., M.P., F.R.S., in the chair. There were also present Thomas Chapman, Esq., F.R.S., Lord Henry Cholmondeley, Admiral Gordon, Sir Edward Perrott, Bart., Admiral M'Hardy, W. H. Harton, Esq., Admiral W. H. Hall, C.B., F.R.S., George Lyell, Esq., Captain Ward, R.N., inspector of lifeboats to the institution, and Richard Lewis, Esq., the secretary.

The minutes of the previous meeting having been read,—

The expense, amounting to £20 19s., was ordered to be paid on the service of the China lifeboat of the institution, stationed at Teignmouth, in rescuing the crew of eight men of the ship *Jessie*, of London, and three of the crew of the brig *Cheshire Witch*, of London, during the late fearful gales in Torbay.

The committee decided to establish at Brixham, Devon, forthwith, a lifeboat station, the city of Exeter liberally contributing to the cost of the same.

The expenses, amounting to £12, were also ordered to be paid on the service of the Whitburn lifeboat in saving one of the crew of the barque *Victorine*, of Ostend. The lifeboat and her crew on the occasion had a very narrow escape of being destroyed on account of being thrown on some precipitous rocks close by the wreck.

Rewards amounting to £32 6s. were also voted to the crews of the St. Ives and Penzance lifeboats for saving the crew of nine men of the screw collier *Bessie*, of Hayle.

The silver medal of the institution was voted to Thomas Carbis, the coxswain of the Penzance lifeboat, in acknowledgment of his general brave services in assisting in the lifeboat, and by other means to save life from shipwreck. Altogether it appeared he had assisted at the saving of nearly forty lives from shipwreck.

Rewards amounting to £81 were also granted to the crews of the institution's lifeboats stationed at Yarmouth and Caistor, for their valuable services during the past month in rescuing the crews, consisting of twenty-two men, of the brig *Thoughtful*, of Sunderland; the schooner *George*, of Goole, and the brig *Tartar*, of Sunderland.

A reward of £23 10s. was likewise granted to the crew of the

* See vols. 1836 and 1846, &c.

Lowestoft lifeboat for saving, in conjunction with the steam-tug *Rainbow*, seven out of twelve of the crew of the brig *Osep*, of Fiume. The committee also voted their thanks to the master of the steam-tug, and £5 to his crew, for their very laudable exertions in connection with the lifeboat on the occasion.

Rewards amounting to £30 were also voted for different gallant services by the following lifeboats of the institution during the late fearful gales:—The Peterhead lifeboat rescued the crew of three men of the schooner *Black Agnes*, of South Shields. The Palling lifeboat saved three men from the schooner *Laurel*, of Goole, and put off to the assistance of the schooner *Julia C. McClean*, of Sunderland; and the Kingsgate lifeboat saved seven men from the brigantine *Fre Mad*, of Bergen. It was also reported that the Ramsgate lifeboat of the institution had, in conjunction with the harbour steam-tug *Aid*, rescued the crew of six men of the schooner *Zephyr*, of Banff.

Rewards amounting to £150 were also granted to the crews of the lifeboats of the institution stationed at Penarth, Newquay (Cardigan), Sunderland, Rhoscolyn, Margate, Pakefield, Winchelsea, Bacton, Walmer, Rhyl, North Deal, Pembrey, Southwold, Cromer, and Skerries, for putting off and rendering assistance to vessels in distress, or for assembling during the late gales in readiness for service for the lifeboats. It is gratifying to know that during the recent fearful gales not a single life had been lost from the lifeboats belonging to the institution whenever they were called out to rescue shipwrecked sailors.

The silver medal of the institution and £2 were voted to Evan Hughes, and £10 to his boat's crew of five men, for putting off in Hughes's fishing boat, and saving at considerable risk of life the crew of the ship *Palmerus*, of Liverpool, which was wrecked off Cymyran, on the Anglesey coast, on the 4th of January.

Various other rewards were also granted to the crews of fishing and other boats for saving lives from different wrecks on the coast during the late gales.

The thanks of the institution, inscribed on vellum, were presented to Mr. R. F. Aldrich, chief officer of the coastguard at Margate, in acknowledgment of his valuable services in putting off in the lifeboat of the society.

During the past month the institution had sent new lifeboats to Hauxley, Newbiggin, Kingsdown, Courtown, and Worthing.

It was reported that Messrs. Forrest and Son, the builders of the institution, had a new lifeboat ready to send to Bombay, to the order of the Harbour and Pilotage Board of that town.

The contributions of the readers of the *Quiver* magazine to the lifeboat fund amounted to about £1,400, being sufficient to defray the cost of three lifeboats. The committee decided to place an additional lifeboat at Southwold, Suffolk; and to form new lifeboat stations at Hasborough, Norfolk; and at Cork Harbour.

Large payments, amounting to upwards of £3,000, were ordered to be made on various lifeboat establishments.

Reports were read from the inspector and the assistant inspector of lifeboats to the institution on their recent visits to various parts of the coast.

The secretary of the institution had also attended a large public meeting at Gloucester, convened by the mayor, to aid the funds of the National Lifeboat Institution, when it was decided to raise the cost of a lifeboat to be called the *Gloucester*.

It was also stated that the cost of lifeboats was being raised in the Sunday schools of London, Manchester, and Salford,—Sir Roundell Palmer and Vice-Chancellor Sir Page Wood taking considerable interest in the fund collecting in the London Sunday Schools.

The proceedings then closed.

BREAKWATER FOR TORBAY,—*Copy of Memorial to the House of Commons.*

The following is the substance of a memorial to the House of Commons resulting from the meeting recorded in the earlier pages of this number.

That Torbay is one of the most important and largely frequented roadsteads in the English Channel, and that its position, its proximity to the Start, its good anchorage, and the shelter which it affords in all winds, except such as are from the eastward, cause it to be largely and constantly resorted to by vessels of all nations, waiting for orders, or detained by adverse winds.

That although the bay be perfectly adapted for shelter of vessels generally, the position is one of great danger when blowing hard from the eastward, at which time from its depth from East to West, it is hardly possible to escape from it.

That a sudden shift of wind, therefore, into this quarter (such as caused the recent fearful loss both of life and property) must at all times infallibly be followed by similar results, is painfully manifest; and it would seem to your memorialists to be consequently incumbent on the nation to take some steps to prevent, if possible, the recurrence of such a wide spread calamity.

That the construction of a breakwater in the bay, has on several occasions been pressed on the attention of successive governments, and that the necessity of harbours of refuge is year by year more widely felt, and more universally acknowledged, in proportion to the rapid increase which has taken place in the mercantile marine.

Your memorialists therefore pray your Honourable House to take into your early and serious consideration the urgent necessity of affording to the numerous vessels of all nations, which are compelled to use this anchorage, such protection as shall adequately secure the lives and property of their crews and owners.

And your memorialists will ever pray, &c.

Nautical Notices.

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

PARTICULARS OF LIGHTS RECENTLY ESTABLISHED.

(Continued from page 107.)

Name.	Place.	Position.	F. or R.	Ht. in Feet.	Dist. seen in Mls.	(Remarks, &c. Bearings Magnetic.)
3. St. Cataldo	Italy	40° 23.4' N. 18° 19' E.	F.	56	6	Est. 16th November, 1865.
Port Camogli	GulfofGenoa	.....	F.	23	3	Est. 1st January, 1866. Red harbour light.
Anso Point	Italy	41° 26.7' N., 12° 37.3' E.	R.	93	15	Est. 1st January, 1866. Interval once a minute.
PortInnocent	Italy. On Mole End	.....	F.	23	3	Est. —. A red harbour light.
4. Fiumara tower	Tiber Mouth	41° 44.5' N., 12° 15.3' E.	F.	88	15	Est. ? On San Michele Tower (a.)
Fiumicino	Tiber	.....	F.	90	4	(b.)
Port Badino	.....	.....	..	..	..	Harbour Lights (c.)
MountCirca- lo	.....	41° 18.4' N., 13° 4.1' E.	F.	124	17	Est. ?
5. Cape Race & Cape Pine	.....	.....	..	..	..	Intended alterations postponed.
6. Currents of Atlantic near	Equator	.....	..	..	..	See paper in page 158.

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

(a.) 4.—The tower is small, octagonal, and stands on the North part of the large tower of San Michele, at nearly a mile from the South point of entrance to the river, and rather more than 4 cables from the beach South of it, on the left bank of the Fiumara-Grande branch of the Tiber.

(b.) 4.—Two lights at the mouth of the Fiumicino branch of the Tiber:—one a *fixed* light at about 50 yards from the extremity of the North mole, 20 feet above the sea, and visible at a distance of 4 miles. The other at 28 yards from the extremity of the South jetty, also a *fixed* white light, 20 feet above the sea, and visible 4 miles.

(c.) 4.—Two *fixed* lights at Port Badino:—one at about 45 yards from the extremity of the dike West of Portatore canal, 15 feet above the sea, and visible 4 miles. Its position is lat. 41° 17' N., long. 13° 9' E. The other light is about 30 yards from the extremity of the dike East of the canal.

ATLANTIC OCEAN.—Equatorial Currents.

The inquiry into the loss of the *Duncan Dunbar* having elicited opinions of the prevalence of an easterly current in the vicinity of the *Rocas*, the following result of an investigation of the whole subject of the currents in the Atlantic Ocean, near the equator, has been published by the Admiralty—And as it will be largely consulted by shipmasters bound to the South Atlantic, we recommend to their attention likewise the letter of Captain T. Hedger, that appears in our February number, p. 86, who with other shipmasters are in the

habit of making good voyages to the South, inside or East of the Cape Verd Islands, not alluded to herein.—*Ed.*

Doubts having recently arisen as to the correctness of published statements relative to the currents that prevail in the immediate neighbourhood of the Rocas, a dangerous shoal in lat. $3^{\circ} 51' 30''$ S., long. $33^{\circ} 47'$ W., 130 miles to the N.E. of Cape St. Roque (and which lies in the track of vessels taking an extreme westwardly route in passing from the North to the South Atlantic Oceans), it is deemed desirable to publish for the information of mariners, the following facts bearing on this question, lest the authority on which the well grounded statements, hitherto received by seamen, may be unjustly weakened.

The latest Admiralty hydrographic work embracing the Rocas was published in 1864, under the title of the South American Pilot, Part I. In it, in addition to the position and nature of these rocks, the following statement is given :—

“The current in the vicinity of Fernando Noronha and the Rocas sets strong to the westward ; at 2 miles westward of the latter, it has been found to run $2\frac{1}{2}$ miles an hour. The many wrecks that have taken place on the Rocas are sufficient to prove to the mariner the the necessity of caution when in the vicinity of this dangerous reef ;” and “when in the vicinity of St. Pauls rocks, chronometrical observations should be frequently taken, allowance made for the current, and a good look out kept. In proceeding to the southward, if to the westward of Fernando Noronha, the same precautions are necessary to avoid that dangerous reef the Rocas.”

The stream which sets to the westward past this reef, as just described, is well known to seamen as the equatorial current. This great current is thus broadly described by the late Major Rennel, whose well known investigations of the currents of the Atlantic Ocean,—as derived from the logs of all the ships of war and Indiamen which had traversed those seas for thirty or forty years previous to his death in 1830,—form the basis of the several works on this branch of Hydrography which have been published for the use of navigators :—

“This stream continues its course along both sides of the equator (from the western coast of South Africa). It receives constant supplies from the drift current of the South Atlantic, so that by the time it has reached the middle point between the two continents, it has acquired during the season of the northern summer a vast breadth, and in some places a rate of 3 miles per hour. At the middle point between the two continents, and precisely at the equator, the stream (now considerably widened) sends off a very large branch to the N.W., whilst the main stream turns to the W.S.W., direct to the promontory of Cape St. Roque, and when it approaches that cape it subdivides, the largest part passing by the north of the cape towards the West Indies, the other Southward along the eastern coast of Brazil.”

As many recent navigators have in practice adopted a more westwardly route for crossing the equator than in former years, it appears

desirable that the facts accumulated as to the general correctness of the foregoing description, and especially as to the direction and strength of the currents in the vicinity of the Rocas and Cape St. Roque, should be brought to the notice of seamen briefly and clearly.

In the immediate neighbourhood of the Rocas there is the following testimony to the generally strong westerly current:—

“The East India ship *Britannia* and *King George* transport were wrecked on the Rocas at 4h. a.m., November 2nd, 1805, when the current set at the rate of $2\frac{1}{2}$ knots to the westward.”—*Brazil Pilot*, 1818, p. 31.

Lieut.-Commander Lee, in the U. S. brig *Dolphin* was employed fourteen days in March 1851 sounding near and surveying the Rocas and their vicinity. He states, “the current in the vicinity of this reef sets from between S.E.b.E. and E.b.N. at the rate of from $\frac{1}{10}$ to $1\frac{1}{2}$ knots per hour. The surface current found by trials on four different days sets from between S.E. and E.b.N. from $\frac{1}{10}$ to $1\frac{1}{10}$ knots per hour. At our anchorage under the lee of Sand Island the tide ran from $\frac{1}{10}$ to $\frac{1}{10}$ knots per hour, setting from between S.S.E. and E.b.N. to the northward and westward;” also, “the current between the Rocas and the Main sets generally from the southward and eastward from one to $1\frac{1}{2}$ knots.”

In March 1856, H.M.S. *Sharpshooter*, Lieut.-Commander Parish, anchored near the Rocas, and at the suggestion of the British Consul at Pernambuco, planted several cocoa-nut trees. In this officer's remarks he states “We found the current to set W.N.W., true, between one and two miles per hour.

On the 12th November 1856, in the afternoon, the ship *True Briton*,* in passing the Rocas and observing signals of distress on the shore, endeavoured to communicate and render assistance by boat, but from the strength of the current was unable to do so from the ship being swept to leeward so fast. On the 13th November, it is stated, “found that the ship during the last twenty-four hours had been set to the westward sixty miles. On the 14th of November, find that the ship has been set to the westward thirty-six miles during the last twenty-four hours.”

In 1858, Commander J. H. Selwyn, in H.M.S. *Siren*, visited the Rocas and erected a temporary beacon. He states that the “anchorage is fair and protected from the prevalent swell from N.E. to S.E.” and “from its situation in the heart of a westerly current, which varies in force from one to two miles, and its comparative vicinity to the mainland, a lighthouse would be most valuable to the mariner, as a means of ascertaining his position with certainty.”

Numerous other isolated examples of the westerly current prevailing near this reef will be found in published works; but the following analysis of the registers of 930 ships, which have been deposited with the Meteorological Department of the Board of Trade between 1856 and 1865, will doubtless, be deemed sufficient.

* Her observations appear in *Naut. Mag.* 1857, p. 51.

Of these 930 ships passing from the North to the South Atlantic Ocean, forty-two passed within a distance of thirty to forty miles East or West of the Rocas at various seasons of the year. Of these forty-two, fourteen do not record whether they have experienced any current or not. One experiences "a strong westerly current," and was "driven back." The remaining twenty-seven found currents of the following direction and rate.

11	vessels	were set West ;—	4	of these	from 48 to 24 miles	and the remaining 7, from 20 to 10 miles a day.
8	"	"	W.N.W. ;—	4	of these	from 51 to 30 miles, and 4 from 29 to 21 miles a day.
5	"	"	W.S.W. ;—	3	of these	from 48 to 30 miles, and 2 from 20 to 10 miles a day.
1	"	"	S.W. ;—	40	miles a day.	
2	"	"	North ;—	12	to 8 miles a day.	

The strongest of these twenty-seven recorded currents were found in June, July, August, and November.

Misconception has also arisen relative to the *easterly current* which has occasionally been found in the parallels of 9° to 2° N., a special and striking example of which is given in the *South American Pilot*, as having been experienced by the brigantine *Monte Cristo* in her voyage from Cayenne to Paranaíba, in July and August 1862.

This *counter current* has been traced to extend, at certain months of the year, from the meridian of 53° or 50° West to that of about 25° West, and thus joining or forming a part of the well known Guinea current. It is seldom experienced to the southward of 2° North, and there are very few records of its being found on or to the southward of the equator ; it must not, therefore, be confounded with the equatorial current, as before described, for in the meridian of the Rocas its southern edge may generally be expected to be found about 350 miles to the northward. The western limits of this occasional *easterly current* have been ascertained from the numerous observations of French ships of war visiting Cayenne and the neighbouring ports, and discussed by the able French seamen Lartigue and Montravel (1827 and 1851), and may be generally stated as existing between the meridians of 53° and 40° West and the parallels of 9° and 5° North, where it has been found running at the rate of sixty miles a day in July, August, and September. Within these limits this counter current does not appear to be constant or certain in direction, a westerly current more generally prevailing.

To the eastward of 40° West part of this easterly current approaches nearer the equator, or to about 2° North and decreases considerably in strength, until joining the Guinea current, where it increases again in velocity as it nears the African shores. Within these eastern limits it appears to run the strongest in the summer and autumn months ;—and East of 30° West to be generally constant during the year. Between the meridians of 30° and 20° West, and the parallels of 8°

and 4° North it has been found to run from thirty to fifteen miles a day.

As the best meridian for crossing the equator by outward bound ships, still appears to be an unsettled question among navigators, and as it is connected with the subject of the equatorial currents referred to above, it may be of interest to seamen to append the following tabular statement, showing where each of the 930 ships already alluded to made their crossings;—it being observed that all these ships were bound from British ports either to or round the Cape of Good Hope, round Cape Horn, or to some port of South America, southward of Bahia, between 1855 and 1865:—

Meridians of crossing the Equator.

	E. of 20°		20° to 22°		22° to 24°		24° to 26°		26° to 28°		28° to 30°		30° W & Wd.
	W.	W.	W.	W.	W.	W.	W.	W.	W.	W.			
Jan. Ships	3	5	9	21	15	22	10						
Feb. "	5	6	7	12	13	4	2						
Mar. "	7	8	11	21	17	8	2						
April "	7	12	25	12	11	2	2						
May "	1	8	12	19	16	15	4						
June "	—	2	8	11	24	22	10						
July "	3	12	8	18	23	9	9						
Aug. "	17	10	11	15	19	5	11						
Sept. "	15	10	7	12	20	8	7						
Oct. "	2	9	6	11	22	17	16						
Nov. "	—	3	1	10	17	32	20						
Dec. "	2	1	3	9	21	12	10						
	62	86	108	171	218	156	129						

It is impossible, without a more rigid analysis than has yet been bestowed on this question of crossing the equator, to determine with precision the best meridian. It is certain that it must vary according to the seasons, and perhaps the months; and as will be seen by a few examples appended, the evidences of the advantages of the more easterly route contrast favourably with the extreme westerly route.

Until, however, the various conditions attending the size, class, and speed of the ships, the favouring circumstances or otherwise of veins of wind, calms, and other local conditions are duly allowed for and include a large number of ships extending over several years, it appears reasonable to assign weight to the practical results afforded us in the above tabular statement.

One fact is observable in compiling this statement, viz., that of the 930 ships, 808 passed 100 miles or more to eastward of the Rocas, and thus to the eastward of Fernando Noronha.

Examples of the number of days occupied by *sailing* ships in reaching the equator in different meridians and at different months of the year from among the 930 ships quoted.

In January and February, three ships of 609, 614, and 1126 tons respectively, cross the equator in 21°, 24½°, and 32½° West and are

respectively twenty-one days from Greenock, twenty-two days from the Start, and twenty-three days from Liverpool.

In March, April, and June, four ships of 664, 898, 1041 (deeply laden), and 477 tons respectively, cross the equator in $21\frac{1}{2}^{\circ}$, $23\frac{3}{4}^{\circ}$, $24\frac{1}{2}^{\circ}$, and 28° , and are respectively 21 $\frac{1}{2}$, 26, 31, and 34 days from Deal, Plymouth, Gravesend, and Liverpool.

In July and September, three ships of 1160, 1202, and 765 tons respectively, cross the equator in $30\frac{3}{4}^{\circ}$, $32\frac{1}{4}^{\circ}$, and $32\frac{1}{2}^{\circ}$ West, and are 20 $\frac{1}{2}$, 38, and 42 days respectively from Scilly, the Downs, and Liverpool.

In November 1855 and 1856, two ships of 1050 and 300 tons respectively, cross the equator in $31\frac{1}{2}^{\circ}$ and 31° West, and are 45 and 21 $\frac{1}{2}$ days in crossing the equator from Liverpool; the ship making the longest passage leaves Liverpool with a "fair but light wind, which lasted with slight intermission to the N.E. Trades, which were also light. Ship was 14 days from 6° North to the equator."

By command of their Lordships,

GEO. HENRY RICHARDS,
Hydrographer.

Hydrographic Office, Admiralty, London,
3rd of February, 1866.

GLEANINGS FROM THE PARIS HYDROGRAPHIC OFFICE.

Lights at the Port of Nikolaw on the River Bug,—North Shore of the Black Sea.—The Hydrographic Office in Russia has informed navigators, by date of 11th of December, 1865, that a red fixed harbour light, 47 feet above the level of the sea, and visible $7\frac{1}{2}$ miles in clear weather through 180° of the horizon from East to West by the South, has been established in the valley of Popovoi, near the commercial harbour.

2. The passage between the port of the valley and the opposite side of the channel is marked by two fixed lights, 12 feet above the level of the river, and visible 4 miles from all points.

3. One is placed at the angle of the port, and the other at the opposite side of the channel, the passage being between them.

The Marne Bank, South Atlantic.—On the 11th of June, 1865, the French ship of war, *La Marne*, when about twenty leagues from land, at 6 $\frac{1}{2}$ h. a.m., observed an apparent change in the colour of the sea. Soon after which some sea weed was passed. At 7h. 20m. soundings of 28 fathoms were found, coral and gravel. About 8h. 30m. the sea recovered its usual colour. *La Marne* was found to have crossed a bank about twelve miles long from N.N.E. to S.S.W. (true). The soundings were found to be in lat. $16^{\circ} 12' S.$, and $37^{\circ} 55' W.$ of Greenwich, and a cast of 190 fathoms without finding bottom was had afterwards in lat. $16^{\circ} 41' S.$, and $38^{\circ} 23' W.$ The longitudes depending on the artillery ground at Monte Video being in $56^{\circ} 14' W.$ of Greenwich.

China Sea: Light-Vessel at the Mouth of the River Saigon.—A notice from the Governor of French Cochin China informs navigators that the floating light of Cangiou was moored at her station at the mouth of the River Saigon on the 26th of November last.

It is a fixed white light, 33 feet above the level of the sea, visible 10 miles distant. The vessel, which has a single mast, is moored N.W. and S.E., in $5\frac{1}{2}$ fathoms water, close to the edge of the bank, $4\frac{1}{2}$ miles N. 48° W. from Point Cangiou, and $8\frac{1}{2}$ miles N. 63° W. from Point Gauh-Ray.

Directions.—Ships entering the river may steer either for the two points of Cocoonut Bay or for the North point under the summit of the Gauh-Ray, until the light-vessel bears N. 63° W., when they must steer for it on this bearing. Having approached near the vessel, she should be left to port, and as the two points of the river may be then seen, it is only necessary to steer so as to pass between them, keeping in the middle of the entrance without any difficulty.

Adriatic: Bank near the Palazoli Rock.—According to a notice of the maritime authorities at Trieste, of 14th of November, 1865, the chart of the Adriatic shows a bank awash with the surface wrongly placed at about 2 miles West of the Palazoli Rock, between this rock and the Point Croce of Isle Cherso. The bank, however, is really about a mile further North than in the chart, with the following bearings:—Point Colerat N. 56° W., Point Croce N. 31° W., Point Secca N. $53\cdot4^\circ$ W., Fort Asino on the summit of Sossico Piccolo S. $81\cdot4^\circ$ W., Port San Martino S. $53\cdot4^\circ$ W.

Navigators must observe that about two cables N.N.E. of this bank there is a rocky shelf extending N. $81\cdot5^\circ$ E., which shows in some places, but which does not appear in the chart nor the plan.

The bearings are true: variation in 1865 13° W.

Point Cassandra Light.—Change of Place.—The Ottoman hydrographic office has informed navigators that the revolving light established on the 10th of July, 1864, on the point of Cape Cassandra at 150 yards from its extreme, has been removed, and on the 10th of January, 1866, a new light was established at 547 fathoms from this point in the gulf of Salonica. The light is revolving, once a minute, with intervals of total darkness. It is 72 feet above the sea, and visible 15 miles.

Tripoli Light.—Syria.—According to a verbal communication from the Director-General of the lights of the Ottoman empire, the colour of the light established on the 25th of March, 1864, on the Ram-Khin Islet, to show the position of the port of Tripoli, was to be changed. This light, which was fixed and red and visible five miles, will be fixed, white, and visible at 10 miles distant.

The red light of the citadel of Tripoli is abolished.

North Atlantic: North Channel into the Tagus.—The Portuguese Minister of Marine informs navigators that the Corredor Channel of

the mouth of the Tagus having been examined recently to ascertain if the depths differed from the chart of 1845: It had been found that throughout the whole channel from St. Julien tower to Cascaes, the depths have increased, but that the North edge of the Cachop has rather extended to the N.E. and East, and the bank must have a wider berth.

A rocky head of $3\frac{1}{2}$ fathoms at low water has been found between St. Julien's tower and Point Rana, at 50 fathoms North of the line from Fort Santa Martha, and the Guia light, and North and South (true) with the palace of Carcavellos, called the Quinta de Labata.

Fixed Light of Muntock, — Strait of Banca.—The director of works, &c., has given notice that a fixed white harbour light has been established on the end of the jetty at the port of Muntock. It is 29 feet above the level of the sea at high water, and is visible at the distance of 8 miles.

Batavia Roads: Kurang Saouw Bank.—The director of works informs navigators that the iron beacon with a large buoy, which marked the bank of $3\frac{1}{2}$ fathoms North of Middleburg has disappeared, and that a white barrel-buoy has been moored about 20 fathoms to West of the former beacon.

The barrel-buoy which marked the wreck of the *Robertus Hendricus* has disappeared, and is temporarily replaced by an ordinary white buoy with red bands, with the word *Vrak* printed on the white part.

Harbour Light of Milazzo.—On the 13th of October last the light at the jetty-head of this port, and which was only lighted in a gale from the N.E., was removed to the end of the last left elbow of the same jetty. It is now at 121 feet from the end of it; is 25 feet above the sea; and from it the point of the presqu'île of Milazzo bears N. 27° E. and Raso-Colmo E. $4\frac{1}{2}^{\circ}$ N.

Curaçoa Reef, — Pacific.—On the 11th of July last, at $3\frac{1}{2}$ h. p.m., the English ship of war *Curaçoa*, on her way from Samoa to the Friendly Islands, observed a reef on which the sea was violently breaking in lat. $15^{\circ} 32'$ S. and long. $178^{\circ} 9'$ W. from Greenwich. The reef did not appear large, but no soundings were obtained.

At noon on the same day the *Curaçoa* was in $15^{\circ} 17'$ S. and $177^{\circ} 56'$ W. at 4h. p.m. After running 17 miles S. $9\frac{1}{2}^{\circ}$ W. Isle Boscawen bore S. $43\frac{1}{2}^{\circ}$ W. and the reef W, $20\frac{1}{2}^{\circ}$ N., and after standing 5 miles S. $6\frac{1}{2}^{\circ}$ W. the lead gave 18 fathoms water. The middle of Boscawen reef bore S. $37\frac{1}{2}^{\circ}$ W. (S. 60° ?) which places the sounding 18 fathoms 14 miles S.E.b.E. from the reef. Bearings true: var. $9\frac{1}{2}^{\circ}$ E. 1865.

N.W. Coast of New Holland, — Dartagnan Reef.—On the 20th of July last, at $11\frac{1}{2}$ h. p.m., the *Dartagnan*, Capt. Bresson, being in $13^{\circ} 16'$ S. and $120^{\circ} 38'$ E., passed a bank on which the lead gave 11 fathoms sand. Shoaler parts are supposed to be on it.

THE CIGAR SHIP.—The *Ross Winans*, better known as the “cigar ship,” was launched on February 19th at Hepworth’s yard, Cubitt’s Town, Isle of Dogs. This ship, unlike a cigar, is pointed at both ends, tapering gradually and smoothly from the middle. It has two screws, one at each end of the ship, but not fixed beyond the pointed extremity, where there would not be room for efficient bearings for the screw shaft. For this reason each screw is 18 feet nearer the centre of the vessel than the points, the cone thus left at each extremity being attached to the shaft and allowed to revolve with the screw. The screws are 22 feet in diameter, and have eight blades each. A wooden deck, with bulwarks partly of the same material and partly of iron, is attached to the outside of the cylinder,—this external appendage having the shape of one of the ordinary Thames river steamboats, but it has two vertical iron funnels and two light telescopic masts. Thus in the water the vessel loses much of its cigar-like appearance.

LOSS OF THE OCEAN MAIL STEAMERS.—The *Jeddo*, which has just been wrecked near Bombay, is the fourteenth steamer which the Peninsular and Oriental Company have lost. The Royal Mail Company have lost ten, the Montreal Company eight, the West Coast of Africa Company six, Inman’s Company four, the Cape of Good Hope and West India and Pacific Companies three each, Cunard’s Company two, and the Hamburg, Cowes, and American Company one. The total number of steamers lost by the above-named companies is fifty-one.

New Books.

WATERLOO.—*A Lay of Jubilee for June 18th, 1815.* Cambridge, Deighton; Hall and Co., London, A.D. 1865.

THE WRECK OF THE HOMEWARD BOUND: or the Boat of Mercy. By *Nicholas Michel.* London, Tegg, Pancras Lane, 1866.

Poetry is said to be emancipated from its long thralldom of silence among us. The ban of banishment is removed, and the opening of the seal seems to have encouraged numerous productions of late in that way,—some (but very few) first rate, proving that the talent of poetry, after its long slumber, has awakened with renewed vigour, although specimens have also appeared which had perhaps been better left whence they came. Both of the productions before us are renewals, but none the worse for that. In the former the reader will find some of the details of battle in blank verse:—its recommendation stern fact, as sternly told, and perhaps well adapted for the purpose here chosen for it. Of its reproduction in these peaceful days as a specimen of taste, we shall leave to its author.

The latter poem, entitled “Homeward Bound,” although repeated also, has far other claims on public patronage in these our British isles, when we say that the object of its author is the promotion of a charity with the view of saving the lives of our seamen. It is composed in excellent taste,—the subject is abundantly fruitful, and the lines have all the enticement of rhythm, pleasing

to the ear, varied measure, and exciting narrative of nautical events conveyed in chaste and elegant expression. Here is a couplet or two, how often experienced by our seamen the wrecks of the present season bear ample testimony.

The blast has come—it drives along,
Scattering the fleecy spray on high;
The noble ship, though firm and strong,
Rocks as the whirlwind hurries by!

What follows may be read in the fate of the *London* in the Bay. But our space is brief, and we must content ourselves with saying, Reader, it is choice, and worthy of thy patronage.

A PRACTICAL GUIDE FOR BRITISH SHIPMASTERS to United States Ports.
By Pierrepont Edwards. London, Longman, Green, & Co., 1866.

This may be considered a most valuable compilation, resulting from a conviction by actual experience of the great want of such a work by our mercantile commanders. As the author justly observes, one in which he might obtain the practical information which he requires without wading through lengthy legal technicalities, or referring to Acts of Parliament and statutory laws. The author has compressed into about 300 pages of small 8vo a large mass of important matter on all that concerns the British trader in the numerous ports of the United States, to all of which he is assisted by a good index. Indeed, the onerous duties of the Shipmaster, first in reference to his ship and her management in harbour preparing for sea,—his voyage, its incidents of all kinds and duties relating to crew, lading, passengers, weight, measures, convoy, discipline, distress, detention, signals, pilots, quarantine, reports, charter, demurrage, average, bottomry, clearance, and any other subject which may fall under the wants of the shipmaster are all here condensely and neatly managed by a very able hand, in addition to all the information he can possibly require at the port to which he is bound,—all this and very much more, completed up to the present day, including those healthy changes which have been effected in some, (Charleston, for instance,) justifies our calling the attention of shipmasters to this unpretending but valuable little volume, on which they will hereafter look as a most useful friend.

**CHARTS AND BOOKS PUBLISHED BY THE HYDROGRAPHIC OFFICE,
ADMIRALTY, in February, 1866.—Sold by the Agent, J. D. Potter, 31,
Poultry, and 11, King Street, Tower Hill, London.**

743.—Newfoundland, West Coast, St. George's Harbour and Codroy Road, French survey, and Captain Orlebar, R.N., 1861, (1s. 6d.)

714.—Vancouver Island, Oyster and Telegraph Harbours, Maple and Osborn Bays, Stuart Channel, Captain G. H. Richards, R.N., 1859, (1s. 6d.)

957.—Philippine Islands, Ports in Mindanao, &c., Spanish surveys, 1862, (1s. 6d.)

972.—Philippine Islands, Looc and Palwan Bays, with Loog and Romblon Ports, *various*, (1s. 6d.)

971.—Philippine Islands, Semirara, Ylin, and Ambolon Islands, Captain Sir E. Belcher, R.N., C.B., 1847, (2s.)

191.—Solomon Islands, Mboli Harbour (Florida Island), Mr. E. J. Scudamore, Master, R.N., 1865, (1s.)

Jersey Island Pilot, Staff-Commander Richards, R.N., 1866, (1s.)

Abbreviations and Signs adopted in the Admiralty Charts, 1866, (6d.)

EDWARD DUNSTERVILLE, *Commander, R.N.*
Admiralty, Hydrographic Office, 20th February, 1866.

THE
NAUTICAL MAGAZINE

AND

Naval Chronicle.

APRIL, 1866.

WRECK AND WRONG AT SEA.—*Letter I.—The “London:” Causes of her Loss: Of Wrecks in general: the Captains’ tendencies.*

27th February, 1866.

Sir,—It may be thought that all which can be said about the calamitous foundering of the emigrant ship *London* in the Bay of Biscay has been said: and that now the official investigation is over, we should be silent and resigned.

As a seaman I ask you not to conclude that all which is useful and practical has been investigated or discussed in this very sad case; but rather to accept the assurance that as regards the *London* and many similar disasters there will be found a vicious and fatal principle at work which results so often in destruction.

Let me, before I proceed, say a few words upon the foundering of the *London*.

I venture to say that no seaman, who has gone carefully through all the evidence which has been gathered regarding the going down of the *London*, can doubt that had that ship been three feet lighter (which would have been her proper trim) she would have weathered the gale. And I assert, that owners of passenger ships ought not to be allowed to *load*, but only to *trim*, such vessels, and for the two following reasons:—1st, That a ship of this description, with a full complement of passengers, yields a handsome outward freight without a ton of cargo! And secondly, that a full laden passenger ship is always in greater danger in a heavy sea than an ordinary carrying vessel, where the hatches can be battened down fore and aft.

If what I say is right, it follows that the loss of the *London*, with
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220 souls on board, arose from her being loaded as if she had been an ordinary carrying ship; and I commend this view of all such cases to those whose duty it is to look into such matters, and to the impartial conviction of all who desire to see so grave a defect in our nautical management remedied.

In looking back upon my nautical life, if the question were asked me how to account for the large amount of *wreck* and *wrong* at sea, I should omit all notice of the mischievous side of insurance,* which takes from the owners their risk, and from the captains their control, and my answer would be simply this:—

Captains of vessels of whatever service, royal navy and mercantile marine alike, will be found, as a rule, to take a *onesided* view of their duties and responsibilities. In a man-of-war he is all for the government and his own authority: if in a merchant ship, he is all for the owners and his own interests, and the other half of his duties, equal in importance and of equal claims, seem never or seldom to be thought of; I mean his duty to his crew, who have placed their lives in his keeping, and share with him all the perils and hardships of the sea, and his duty to his passengers, who, on the faith of his reputation, commit themselves to his care.

I am persuaded that if an investigation were made into the constantly occurring wrecks, disputes with crews and passengers, ill treatment, mutinies, and a *long black list* of the Annual Nautical Calendar, there would be found underlying a large majority of these cases the vicious onesided principle to which I desire to draw attention. And I am also persuaded, that if England is to be known for the excellence as well as for the extent of her maritime operations, an important step in this direction will be the recognition on the part of those who sail her ships, of their complete duties and responsibilities, *whole and entire*.

I will defer what more I wish to bring to notice for another letter, if you will allow me space to do so.

W. C. P.

To the Editor of the Nautical Magazine.

So serious a calamity as that of a large ship, supposed to be in every way seaworthy and well able to carry her stores besides her passengers to the antipodes, foundering at sea in a common winter gale, with 220 souls on board of her, is one of no ordinary kind, and one, moreover, which cannot be too much examined in order, if possible, to arrive at the main cause of the disaster. The Board of Trade has taken pains, by a lengthy investigation, to arrive at that cause, and although an "immediate cause" of her loss has been pointed out in that investigation to have been the displacement of the engine-room "hatch," (as it is termed,) by which water was admitted into the ship, still such displacement was itself only an *effect*, and certainly a fatal one, of an original *cause*, which to the investigation of the Board of Trade seems to have been too insidious to be easily detected.

* To be considered in a future letter.

Our correspondent has pointed out in a few lines what appears to have been this original cause, and if the circumstances of the ship's behaviour from the first part to the last of her voyage be considered in detail, and referred to the effects produced on her, the long string of disasters which she experienced would all be attributed in a seaman's estimation to her being too deep in the water. Her sluggishness, her want of buoyancy to obey the impulse of the heavy seas readily and easily, in fact, her dull inactivity in not at once lifting to the wave, would all be attributed by any seaman who knows what a ship should do, to her being too deep in the water! Her power of active exertion to yield to the influence of successive seas was gone, and the consequence was from wet decks at the first, followed by loss of spars, the sea washing on board, and washing away stern ports that she filled with water and foundered.

The real and primary cause of the loss of the *London* appears in our view to have been *her depth in the water!* Our correspondent, W. C. P., says she was *three feet* deeper than she should have been. On this subject the evidence of Mr. Wilson, a retired shipbuilder of Liverpool, mentioned in the report, is most important. He says,—“the present system of shipbuilding as to length, breadth and depth, is *a most objectionable one*, and that unless great judgment is used in loading such ships, *they will be very dangerous at sea.*” Mr. Wilson has retired from business some years, and no doubt the change must be very striking to him betwixt the proportions of ships built in his time and the present, when the length in proportion to width is as eight and even ten to one. [We may observe here that the *London's* length (by the report) was *eight* times her breadth, a fact which must evidently contribute to her sluggishness in *rising to the seas*, and thereby subjecting her to the consequence of *the sea rising over her, staving her ports in, &c.*] This (continues the report) is a most important subject, and *may engage the attention of practical shipbuilders.*” We trust it will, or we shall soon have some more cases like the *London's*. But, say the shipbuilders, you cannot have speed without length; and here we have the root of the evil. The merchant says, we must have railway speed at sea, or, if we cannot get it, the speed that is the nearest possible to it! Again, we believe that the first element in all such calculations should be *safety*: and unless it be so, shipowners may build their ships, but they will not get passengers!

The report also adds that “the rule of calculating the deep-load-line by the scale of displacement may be a safe one as regards the ship's ability to carry her cargo in safety; but not as to *ability to carry her load lightly, so as to make her an easy ship for the conveyance of passengers.* In calculating the deep-load-line, the question of buoyancy is a most material element as regards the behaviour of a ship in bad weather; and, in fact, were the deep-load-line permanently marked on all vessels, we might not have to deplore the annual loss of life that occurs from “presumed overloading.”

That term overloading, according to the views of our correspondent

as well as ourselves, has been lost sight of in regard to the unfortunate *London*, and had Captain Martin resorted to the expedient of throwing half of his cargo overboard, in our opinion he would have saved his ship,—whatever the *underwriters* might have said. But it is possible that such a course never occurred to him. Still the observation that the ship was too deep in the water was made at Plymouth, and it seems even to have been entertained in the ship by some papers which have been thrown overboard by the passengers in their distress. We find the following in the *Daily News* of March 1st. It is a melancholy relic, but is worth preserving; for it conveys a lesson to our shipbuilders; and we have underlined the passages in the sixth paper which bear out our remarks;—that the *London* really was a CARGO SHIP!

Admiral Halsted, the secretary of Lloyd's, has received the following letter from Sir Anthony Perrier, C.B., her Majesty's consul, and Lloyd's agent at Brest, dated 24th of February, 1866:—

“Sir,—I annex a translation of an extract from a letter just received from the Commissary-General of Marine at Lorient, which may be of interest to those concerned in the fate of the unfortunate *London*, should the original papers sent to Paris not have been transmitted to her Majesty's government by the Minister of Marine.

ANTHONY PERRIER.

“On the 12th of February last three bottles were found on the coast of Quiberon and Locmaria, containing six papers written in English as follows:—

“The first paper.—‘D. W. Lennon, *London*, Thursday, 10th of January, 1866.—The ship is sinking; no hope of being saved. Dear Parents, may God bless you, as also me, with the hope of eternal salvation.’

“Second paper.—‘Steamship *London*: They are putting out the boats.’

“Third paper.—‘F. G. Huckstepp. On board steamship *London*, lat. 46° 20', long. 7° 30' lost boats, masts, and sails; ship leaking.’

“Fourth paper.—‘We commenced our voyage on Saturday, the 30th of December, 1865. Sunday in the Channel. Monday in open sea. Tuesday in ditto. Wednesday at Cowes. Thursday at Plymouth. Friday and Saturday at sea. Sunday, bad weather, Monday, water from the stern comes in cabins. The 9th, heavy damages, a boat lost. May we get home. Storm.—H. G.’

“Fifth paper.—‘F. C. M'Millan, of Launceston, Tasmania. 11th of January, 1866, to his dear wife and his dear children: May God bless you all. Farewell for this world. Lost in the steamship *London*, bound for Melbourne.’

“Sixth paper.—‘H. J. D. Denis to Th. Denis Knight, at Great Shelford. Adieu, father, brothers, and sisters, and my . . . Edi . . . steamer *London*. Bay of Biscay, Thursday, 10 o'clock. *Ship too heavily laden for its size, and too crank. Windows stove in;*

water coming in everywhere. God bless my poor orphans. Request to send this if found to Great Shelford. *Storm not too violent for a ship in good condition.*

"On the same day were found on the shoals of Quiberon, a binnacle watch, stopped at half past ten o'clock, a woman's shift, two cotton sheets, two splinters of wood, having on them in white letters, and six centimetres ($2\frac{1}{2}$ inches) long, the word 'London.' A great quantity of staves have been picked up along the coast. In compliance with instructions from the Minister of Marine, the abovementioned papers have been sent to the Minister of Marine and Colonies."

Thus we have, as the last words from the *London*, the opinion which, for what we know, may have been prevalent on board and the conversation of the passengers, that "*the ship was too heavily laden for its size, and too crank!*" How thoroughly do these last dying words of the unfortunate passenger of the *London* bear testimony to the truth of our observations,—"*She was too deeply laden*" and "*too crank,*" both of which evils her narrow breadth, 32·9 feet, and her great length, 267·2 feet, would tend to show the ill effects of!

Mr. Wilson is right! Will our shipbuilders take the lesson? or will they require to learn it through the medium of the public?

The following has appeared in the *Daily News* respecting the papers:—

"The papers that were found in the bottles picked up on the French coast at Auray, and were proved to have been thrown overboard from the *London* steamer just prior to her foundering, have been forwarded to Lloyd's. They are small slips of paper, and the writing is in pencil. It is intended to send these sad mementos to the relatives of the unfortunate passengers. There also came ashore, at the same time, a dead body of a young woman, supposed to be English. Her linen bore the name of 'Emily Debenham,' and it was thought she came from the *London*. There is, however, no such name among the list of passengers. There was a quantity of rings and jewellery found on her, which are now in the possession of the French authorities, to be restored to her relatives.

Junior Athenæum, March 10th.

"Sir,—The Emily Debenham mentioned in your impression of to-day was certainly a passenger, with her husband, on this ill-fated ship. She was a native of Australia, an amiable and accomplished lady, returning from her first visit to her parents' and her husband's country.

"The body was in a state of almost perfect preservation, and her relatives here have the only satisfaction remaining to them of committing it to consecrated ground.

I am, &c.

EDWARD ROBERTS.

To the Editor of the Daily News.

"[Another correspondent informs us that Mrs. Debenham's name was in the published list of passengers.]"

The name, Mr. and Mrs. Debenham, appears in the *Daily News* of January 18th, as known at Plymouth to be among the cabin passengers. See also the general list in the same paper. In respect of her loss the Plymouth people, among whom were scores of seamen, were convinced that she was "overweighted,"—that she "lay low in the water like a collier," quite agreeing with our correspondent.—ED.

OUR SAILORS' WANTS, AND HOW TO MEET THEM.

(Concluded from page 38.)

We may sum up the sailor's wants as follows:—

1. An acquaintance with the teachings and promises of the Christian religion, for the learning of which he is in better circumstances at sea than on shore.

2. The opportunity for rational amusement and intellectual culture whilst on shore, and, if possible, whilst at sea.

3. The prospect of honourable marriage when his time comes, and of keeping his wife and family respectable.

4. The opportunity of investing his savings so as to be able to provide for his old age, and for his family after his death. This would be best done by a Government Pension Fund and Life Insurance.

Few commanders and officers can read this list without feeling that they might do, some much, some little, for the end in view.

We will now say a few words on what sailors must do towards their own improvement.

The accompanying letter, from an able seaman, shows that they are in want of work of this kind:—

Poplar, 2, St. Leonard's Road.

Sir,—I have great pleasure in informing you that, in looking over the *Shipping Gazette*, on Saturday, May 6th, I was agreeably surprised by seeing your letter, which you had previously intended to have spoken at the meeting held at the Mansion House on the 28th ultimo. I have to inform you that I was present at that meeting, and was much surprised at your not gaining a hearing; but after a moment's reflection you will readily understand why you were refused a hearing. Those sentiments which you have expressed are unpalatable to the majority of shipowners in England. They do not wish to see sailors become sober, prudent men; if they did, sailors would soon know their rights, and, knowing them, would not hesitate to demand them. What greater evil could befall the Jews, crimps, publicans, and prostitutes of London, than to see the sailor become a

prudent, thinking animal. I beg, sir, to tender you my sincere and heartfelt gratitude for the endeavours you have made in our behalf. And I beg to state, as an excuse for my troubling you now, that, during a period of fifteen years at sea, although I have been a close observer of mankind, I could never discover a true sailors' friend until I heard you at the Mansion House, and saw your letter. I hope God will strengthen and prosper you in the good work you have undertaken. If you should happen to meet with a new newspaper, *The Public Correspondent*, published Saturday, May 6th, you will therein see a letter referring to the meeting held at the Mansion House, entitled—"An Hospital for Seamen," and signed "Jack Oakum." This letter was written by me previous to my seeing your letter in the *Gazette*.

I subscribe myself your grateful servant,

T. H.*

First, then, for a truthful view of their position. Once for all let me say, and say it with thankfulness, that there are many steady well-behaved men amongst them, men whom it is a pleasure to have on board ship with one. But on the other hand, many who are good seamen and kind-hearted men are sadly given to drink and other vices, which are fast hurrying them and their sensual companions to utter ruin.

We would not have a sailor close his eyes to these facts, and say, "Peace, peace," to himself, "when there is no peace;" but honestly and manfully look them in the face, and search for a remedy. That inestimable remedy can alone be found in the acknowledgment that we are helpless sinners, unable to do any good thing in our own strength; but at the same time in the joyful thought that God in His love sent His own Son Jesus Christ into the world to seek and to save the chief of sinners, and that He died for us on the cross to bring us to God; that He has promised to help us with His mighty help, and that by real, humble prayer to Him for His strength, He will so graciously stand by us in the hour of temptation, that each one of us may be enabled to use St. Paul's words, and say for himself, "I can do all things through Christ who strengtheneth me."

* In another letter from T. H., he tells me:—"I was induced to go to sea by seeing large placards in the Jews' shop windows in the Highway, stating that 'boys were wanted for the sea.' I gave one of these enterprising individuals five pounds to fit me out, which he accordingly did, for in less than a month I was *out* both at elbows and knees." . . . He goes on to say:—"I am surprised the government do not appoint an officer to inspect ships' forecastles in the coasting trade, for some of them would not be tolerated a single day by our nobility to keep dogs in. This very day I saw my brother off in the barque *N—*, out of the W. I. Docks, for Trinidad. He, like myself, is in the habit of keeping a journal while at sea; but, when I saw her forecastle, I knew such a thing would be out of the question, for it was damp and dark as a grave, and leaky into the bargain. This is the kind of home we have to live in half our lives, yet landmen wonder at our recklessness."

But this strength is not given to those who stand still with folded hands. We see in the Bible that when God has instituted means, we have no right to be looking for miracles. "When God has made a channel, He may be expected to send through that channel the flowings of His grace;" and therefore we would earnestly press on sailors to use all helps towards a steady life;—they need them all in their great temptations.

We have only to look at the fact that so eminent an apostle as St. Paul worked at tent-making, to see that God attaches honour to industry, and that therefore manual labours need not "serve as leaden weights which retard a disciple in his celestial career; but as the well-plumed wings, accelerating gloriously the onward progress." The hours of work are not our times of trial, but the hours of leisure; for we all know that

"The devil finds some mischief still
For idle hands to do."

Let a sailor, then, learn to read and write, so as to be able to instruct and amuse himself, and keep up his intercourse with his friends at home; and the more he adds to this simple beginning the better, for "intelligence opens up many *new pleasures* to the working man. It is because he has so few pleasures, except those of a low animal kind, that the uncultivated workman is so apt to be caught by the coarsest bait the devil can put upon his hooks." It is this, added to the monotony of life at sea, which makes so many sailors a prey to the harpies who are ever ready to *welcome* them on shore,—so long as their pay lasts: but these so-called friends have not improved since the old ballad was written two centuries ago, where the recently-landed seaman describes—

We feasted on dainties, and drank of the best;
Thought I, with my friends I am happily blest;
For punch, beer, and brandy, they night and day did call,
And I was honest Johnny, Johnny pay for all, all, all,
And I was honest Johnny, Johnny pay for all.

They plied me so warm that in truth I might say,
That I scarce in a month knew the night from the day;
My hostess I kiss'd though her husband he was by,
For while my gold and silver lasted, who but I, I, I,
For while my gold and silver lasted, who but I.

This life I did lead for a month and a day,
And then all my glory began to decay;
My money was gone, I quite consumed my store;
My hostess told me, in a word, she would not score, score, score,
My hostess told me, in a word, she would not score.

She frown'd like a fury, and Kate she was coy;
A kiss or a smile I must no more enjoy:
Nay, if that I call'd but for a mug of beer,
My hostess she was very deaf, and could not hear, hear, hear,
My hostess she was very deaf, and could not hear.

Now having replenish'd my stock once again,
 My hostess and daughter I vow to refrain
 Their company quite, and betake myself to a wife,
 With whom I hope to live a sober life, life, life,
 With whom I hope to live a sober life.

There seems to be a growing desire amongst the friends of sailors to give them more opportunities for instruction and amusement, which latter, I, for one, consider also of great importance. For instance, Calcutta has lately given them a very good play-ground, where they can have cricket, quoits, skittles, &c., apart from the low grog-shops in the worst parts of that "unsavoury city." Calcutta is also hoping to build a well-placed Sailors' Home, with rooms for an evening school and reading; also a public lecture-room and chapel,—but these will be useless if sailors do not value them properly, and make use of them when they have an opportunity.

Another great help to rising in the world is a judicious expenditure of our earnings, whether small or great, for it is of more importance to consider *how* we spend, than *how much* we earn. Many working men, who have little idea of keeping accounts, would perhaps be surprised to hear that their incomes are equal to those of some of the upper classes. Thus, for instance, Mrs. Bayly says, in her *Workmen and their Difficulties*, that in the iron trade, where wages are very high, rail-rollers are able to earn a rate of daily pay equal to that of a lieutenant-colonel in her Majesty's Foot Guards; slingers, equal to that of majors of foot; and furnace-men, equal to that of lieutenants and adjutants. But this is not all. The workmen add greatly to their income by the wages earned by their sons.

"The question naturally arises, How are these large earnings spent? We can see how professional gentlemen spend a similar income. We have passed pleasant evenings with country curates whose incomes scarcely exceeded £100 per annum: and in their houses we have found ourselves surrounded by something more than the necessaries and even the comforts of life. The spirit of refinement that pervaded the inmates of this neat and unpretending home, manifested itself outwardly in the clean white muslin curtains, the plant-stands at the window, and the cut flowers tastefully arranged on the table. We have not spent any evenings with factory operatives, although their earnings far exceed the amount above mentioned. They have never asked us; but as we really want to know how and where they live, we will follow one of them home.

"This getting home is rather a tedious process. Certain houses by the way have to be visited, which proceeding sadly takes up time. At last we find ourselves following the workman through some dark, back streets, until he enters a dwelling dismal enough in the exterior; but oh, the sights and sounds within! We can scarcely breathe in that atmosphere, nor could we spend an evening with the master of the house if he were to ask us. We can scarcely conceive it possible that he can actually be earning £150 to £200 a year."

The importance of this extract pleads its own apology for its length.

Again, it is quite true that "nothing of a worldly kind so holds down the working classes as their being from hand to mouth; and nothing that would so better their condition in a hundred ways as the possession of a little capital. At present, if a working man sees a favourable opening to commence business on his own account, where a little capital is needed, he is merely tantalised by the thought how entirely beyond his power is the situation which would have suited him so well. He may hear of employment to be got at a distance on highly favourable terms, but for want of the means of transport he cannot reach the place. He may wish to emigrate, but for want of money the notion is impracticable. He may have a highly talented child, whom a good education would be sure to advance, but the other children are coming on, and this one must be put out at the earliest period to any employment where he can earn his bread. Practically, the difference between having nothing and having a hundred pounds is the difference between slavery and freedom." Now, is this not especially true of sailors, who are often obliged, by their reckless waste, even to endanger their lives by going in ships that are unseaworthy, and their health by having a very poor stock of clothes for the varying climates to which they are exposed, to say nothing of the time when they may be disabled by sickness or old age? Let every sailor, then, begin saving money, and investing it in Savings Banks, or in a Life Insurance and Pension Fund, which will support him in old age, or help his relations should he die early, remembering that every penny spent in this way makes him a double gainer, as it keeps him from vice at the same time that it is helping to make him an independent man.

But the monster evil with sailors is their connexion with bad women. This is their greatest temptation. If they yield to this, drink and recklessness are almost sure to follow. Their relation to woman must be improved ere they can rise in the social scale. The men and women of any class rise and fall together. As it is now with a very large proportion of sailors, they may love a parrot or a cat, (and I have seen an old sailor cry over his dead cat,) but they cannot love the woman they are brought in contact with, or if they do, they are very soon forced to call themselves fools, for she is a creature who does all in her mighty power to lead him to do wrong, and perhaps drugs and robs him of every penny, and even of his clothes.

Thus it is of the very first importance, it is striking at the very root of the evil, to induce sailors to look forward to honourable marriage with a respectable woman. Now, unfortunately, as few can expect it, they are often led into early vice; and, with others who are married, their profession exposes them and their wives to very great difficulties. I honestly confess that I think nothing but the very highest Christian principles could enable any man or woman to act rightly under the circumstances in which many sailors and their families find themselves placed.

This great trial of sea life, the long separation from home and family, seems inseparable from it, in its very nature, and makes it the more incumbent on *all*, officers and men, to work with a will towards mitigating the troubles of the wives left behind. Foremost amongst these is that fruitful source of immorality and ill-health—bad lodgings. “It has been well said, that the man who dines for sixpence, and clothes himself during the year for £5, is probably as healthily fed and as healthily clad, as if his dinner cost £2 a day and his dress £200 a year. But this is not the case with respect to habitation. Every increase of accommodation, from the corner of a cellar to a mansion, renders the dwelling more healthy, and, to a certain extent, the size and goodness of the dwelling tend to render it more civilized. We are aware that some have exaggerated the importance of improved dwellings, fancying that nothing else was needed to regenerate the worst classes of society. We have no fancy for such an extreme. The true light in which to view the matter is this, that while people live in filthy, ill-ventilated, crowded dwellings, huddled together like pigs, neither the efforts of the physician, nor of the magistrate, nor of the city missionary, nor of the minister, nor of the schoolmaster, nor of the temperance agent, nor of the lady visitor, nor of any one else, can *ordinarily* avail to reclaim them to sobriety, or to elevate their condition. It is all, or nearly all, good labour wasted and thrown away; whereas, if you can get them into decent, healthy, and cheerful abodes, you may work all these agencies with delightful encouragement, and with the best hopes, through the blessing of God, of rearing a sober, happy, and pious population.”*

A sailor who knows the cheering effect of a ten-knot breeze, and the luxurious enjoyment of the pure fine air of the Trades, should be particularly unwilling to leave his family in these *hovels* rather than *houses*, of which Mr. Blaikie says that they “generate an evil influence, through which the moral character of the inhabitants is exposed to a process of sapping and mining. This lies in that feeling of *depression* which unwholesome dwellings are so apt to bring on: in consequence of which the sinews, both of mind and body, become slack and feeble, the power of resisting temptation is impaired, and a craving for excitement is engendered.”

One great remedy for these evils would be the Married Sailors' Homes, and another in subscribing to building societies. This is already done by some, for the captain of a coaster told me that each of his men had a house of his own in this way; adding, as might have been expected, that the men were steady, and stuck to the ship. In some parts of England these societies have had wonderful success. One cluster of societies in Birmingham have received, in small sums, upwards of half a million sterling, while the number of houses erected approaches 10,000. This is almost wholly the work of the labouring classes, of persons whose wages range from 12s. to 40s. a week; and

* From *Better Days for Working People*, by the Rev. William G. Blaikie, A.M., F.R.S.E. London. 1868.

they find that by beginning to save early (from 2s. to 3s. a fortnight) a man can live in his own house, rent free, by the time he reaches middle life, besides having a property to leave to his wife and children. Is there any reason why sailors should not participate in these advantages?

This subject cannot be better closed than in Mr. Blaikie's admirable words:—

“Next after their Christian good, no subject concerns the welfare of the working classes more closely than this. As cleanliness is next to godliness, so wholesome houses come next to that divine remedy for all that sin has brought into our world, that stands alone and unrivalled among the blessings offered to man. Without the possession of that remedy, even the best of houses is but a paltry and miserable thing. While we plead thus strongly for ‘the earthly house of the tabernacle,’ we must add one earnest counsel to every reader to make sure of ‘the house not made with hands, eternal in the heavens.’”

Finally, a few plain words must be addressed to every sailor:—

If you wish to be happy in this world or the next, you must for ever give up all association with bad women, and all excess of drink. To one who has long yielded to bad habits, we know that this sounds like requiring impossibilities. We feel most deeply for you, and would gladly do all in our power to help you. All we can do is to repeat the fact that these habits must be given up before you can be happy, and we joyfully tell you that God in Christ is willing, and able, and anxious to help you if you will only humbly pray to Him. We beg of you to try the experiment. It never did, and never can fail. Thousands can happily testify that they have overcome these vices by honest prayer and striving, and you can do the same.

The slight further help that we can give is by striving to get up married sailors' homes, schools, innocent amusements, pension fund, &c., and that is the object of this pamphlet. We close this imperfect sketch of the wants of our seamen with a prayer that those who are more able will take up the subject, and never let it drop until something practical has been done for the elevation of the BRITISH SAILOR.

TERRESTRIAL MAGNETISM WITH REFERENCE TO THE COMPASSES OF IRON SHIPS: THEIR “DEVIATIONS” AND REMEDIES.—*By Evan Hopkins, C.E., F.G.S. Read at the Royal United Service Institution on Monday, 29th of January, 1866.*

[The protection of the compass from the deranging effects of the iron which now is so largely employed in nearly every ship afloat, is so very important a question, that every attempt to effect that great object deserves encouragement. It is therefore with no prejudice or

any other inimical feeling that we received Mr. Evan Hopkins's recent lecture on that subject at the United Service Institution in Westminster. And we assure him it was more with doubts on the efficacy of his proposed cure, that we left the discussion of his principle than the desire of its success. That the most skilful seamen look on it in the light in which the Royal Society has reported "as a mystery not capable of comprehension," is no cause for surprise. It is far deeper seated in its origin than some fellows of the Royal Society itself suppose:—who, like many seamen, have not turned their attention towards unravelling its "mystery." And we may be permitted perhaps to doubt whether our "most skilful seamen frequently ignore it altogether," for if they do, their reckonings must be egregiously in error. At all events we showed the other day that one of our commanders of a steamer shaping his course down St. George's Channel had the ingenuity to find it, by obtaining the bearings of two lights in one, which bearing his chart also gave him. So that having this along with what his own compass gave, he thus found his deviation on one point at least. Whether he did it or not on more than one does not appear. But he at least was aware of what variation and deviation were. And this, not the "mystery" itself of why his compass-needle has deviation as well as variation, is what concerns him.

Mr. Hopkins comes forward, as others have done, and we welcome his lecture to the pages of the *Nautical*.]

Iron Ships and Compasses.—Preliminary Observations.

The attention of the Fellows of the Royal Society has been recently directed to the very great increase which has taken place in the amount of iron employed in the construction and equipment of ships, and the consequent augmentation of embarrassment in their navigation by the action of the ship's magnetism on their compasses.

The deviations of the compasses arising from the action of the iron, threaten to be productive of very serious loss of life and property, unless better remedial measures be adopted. These inconveniences, which are now so much felt in the mercantile marine, have induced the President and Council of the Royal Society to forward a "Memorandum" on the subject to the President of the Board of Trade, in which we find the following remarks:—

"It is believed that for some years the number of iron ships constructed has greatly exceeded that of wood built ships, and this is particularly the case as regards passenger steamers." "The consequence has been a great increase in the amount of the deviation of the compass, increased difficulty in finding a proper place for the compass, and increased necessity for, and *difficulty in, applying to the deviation either mechanical or tabular corrections.*"

With regard to the science of magnetism, it is declared in the "Memorandum" that "at present it may be said that entire ignorance of the subject is the rule." That "the most skilful seamen frequently either ignore it altogether, or look upon it as a mystery not capable of comprehension."

These statements from so high a scientific authority, in connection with many years of observations and experimental researches on the subject of terrestrial magnetism, have induced the writer to prepare this paper, with the hope that it will render some assistance at least in the mitigation if not in the entire removal of the difficulties referred to, and in the carrying out of the objects recommended in the "Memorandum."

Mariners are well aware of the difficulty in applying to the deviation either mechanical or tabular corrections; the most careful and experienced navigators place no reliance whatever on either of the methods now practised. As an apology for their ignorance of the science of magnetism, they declare that as yet they have had no books to enable them to acquire practical knowledge of the subject. "We do not find," says an able writer on the mariner's compass, "a single attempt at a popular explanation of a branch of science which is quite capable of being made intelligible to any man of ordinary capacity. Such a work is much needed. The Admiralty Manual can only be understood and appreciated by mathematicians. The work is not adapted for the ordinary class of mariners, yet this is considered the best authority to which they are referred for information for their guidance."—"A popular treatise is a desideratum, and until the gap is filled up there is no prospect of seeing the principles of this branch of science valued as they ought to be."*

With a view to aid in supplying this deficiency, the writer will give a brief outline of the general character of terrestrial magnetism. He therefore trusts that the phenomena of magnetism herein explained will be comprehended by practical men without much difficulty, so that they may obtain sufficient knowledge of the laws of magnetism to enable them to apply them judiciously to compasses and other magnetic instruments, without the necessity of being trained in the higher branches of mathematics.

The Methods now Adopted to Correct the Errors of the Compasses in Iron Ships.

There are two modes now practised for correcting the deviation, each of which is considered to have its advantages and disadvantages; but excepting for ships making short voyages in the same parallel of latitude, both methods are regarded as mere temporary corrections; and even when confined to the same latitudes they can only be depended upon for a very short time, owing to the rapid changes taking place in the *polarity of iron vessels*.

(1.) For the ships of the royal navy, tables of deviations on each point are obtained by "swinging" each vessel before leaving port. The deviations recorded are applied as corrections to the courses steered. But as the polarity acquired by the vessel in building is so transient that it vanishes after a few months—if the courses steered be subject

* See *Quarterly Review—Mariner's Compass*, for October 1865.

to many changes, these tables for corrections made on leaving port become utterly useless.

(2.) The system of "compensation" by magnets and soft iron is adopted in the mercantile marine. The navigating compass is generally placed in a position near the steering gear, where the deviations are often excessive. It is supposed that the compass can only be brought back towards its meridional direction by powerful magnets. When these magnets are applied, the compass is then held, as it were, in equilibrium by a powerful antagonistic force. And when the changes in the polarity in the iron ships and in the position of the magnets with reference to the meridian take place during a voyage, large errors are necessarily introduced, which considerably aggravate the evil, and thus render it advisable to remove them, to avoid fatal results. The application of magnets with the view of neutralising the effect of the iron ship in the compass is not only a great mistake, but the most dangerous appliance that could be conceived.

If a compass be surrounded by fixed magnets, or even by ordinary iron, it becomes absolutely useless as a guide. An illustration of this has been observed in the *Royal Sovereign*, where a compass carried into the interior of a turret was found to have scarcely any appreciable tendency to point in one direction rather than another. The same kind of effect may be seen in placing compasses between iron decks, and in boilers, iron pans, or even in buckets; and also to a certain degree within a broad iron ring, or a cylinder.

It never seems to have occurred to the advocates of mechanical corrections, that the very same arrangements of iron and magnets which neutralised the ship's attraction, deranged also the normal direction of the magnetic force; by which power alone, the needle receives polarity, and is held in the magnetic meridian.

These attempts to correct the deviations plainly show that the phenomenon of *the directive power of the magnet* is not well understood, and justify the remark made by the President of the Royal Society in the "Memorandum" to the Board of Trade, that "at present it may be said that entire ignorance of the subject is the rule."

In corroboration of what has been stated relative to the *rapid changes* in the magnetism of new iron ships, and the *difficulties attending the present methods* in correcting the deviation of the compass, the following instances may be noted:—

The *Scorpion*, armour-plated ship, after lying *four months* in a contrary direction to that in which she was built, *lost or changed her polarity*.*

"To the application of any mode of correction by magnets or soft iron to the *standard* compasses of the royal navy, strong objections are entertained." "*The correction cannot be depended on in the case of a newly-built ship.*" "There must always be great uncertainty as to the correction on a change of magnetic latitude." "It is also right

* See Paper by Messrs. Evans and Smith, read at the Royal Society, March 16th.—Postscript, page 321.

that we should not pass over this remark without *protesting against the application of such corrections to the standard compass.*"*

Yet, notwithstanding the objection and the protest against the use of magnets, &c., to correct the deviation, we are informed that the Superintendent of the Compass Department, in the absence of a better method, has not only been compelled to apply them to the steering compass, but also to *the standard compass*, especially on board the *Minotaur*.

This fact shows the necessity of devising some new and less dangerous method of removing the difficulties, not alone in the mercantile marine, but likewise in the royal navy.

A captain of an Australian iron ship, some years ago found, after crossing the equator, that the "*lubber line*"† was always nearly N. by compass, in *whatever position the ship's-head was brought!* The captain fortunately found out the fact and its cause in time, and immediately removed the magnets and then steered without difficulty. Indeed many similar instances have occurred in the Irish Channel, Mediterranean and Red Seas, Indian Ocean, and on the Pacific, of the removal of magnets to avoid confusion and danger.

It is no unusual thing for captains in getting to sea, to remove the correcting magnets, as they find that the changes of deviation in shifting the geographical position are more uniform and more easily ascertained and corrected by observations in the *unadjusted* compasses than in those which are surrounded by magnets.

To guard against the danger of placing too much reliance on the present methods of correction, Mr. Towson, in his *Practical Information on the Deviation of the Compass*, makes the following remark:—"The mariner should be cautioned not to depend on the adjustment within half a 'point,' and to shape his course so that even a 'point' of error should not place him in danger." A "point" being 11 degrees, an error of half that amount in the Indian Archipelago, or even on the south-eastern coast of Australia, and other coasts with coral reefs, &c., in a fast steamer, would be a very serious affair, especially in dark foggy weather.

The sluggish and incorrect state of many of the compasses of steamers employed in the English Channel and German Ocean is lamentable. Had it not been for the fact that their commanders depend almost solely on the "look out" and the "lights," the consequences would be much more serious than they are. I lately saw in crossing the Channel a binnacle, which was placed within three feet of the heavy steering gear, repeatedly knocked and kicked to make the card move! The compass was scarcely 30 inches above the iron beams, and was surrounded by magnets and iron chains. In fact the compass was of no service, and in a fog would have been a source of danger.

Many of the errors of deviation however, attributed solely to the hulls of the ships, may be referred to the defective manner in which

* See the *Admiralty Manual*.

† Mid-ship line from bow to stern.

the binnacles are placed on board iron ships. This also deserves the serious, and indeed the immediate, attention of the Underwriters, as well as of the Board of Trade.

From the foregoing observations it is evident that the present methods of correcting the errors, and of placing the compass on board of iron ships are extremely unsatisfactory, and tend to create confusion, and even fatal results.

It will be necessary before entering into the details of the proposed arrangements, to give a brief outline of the phenomena of magnetism, in order that its laws may be thoroughly comprehended. Without a knowledge of these laws it will be impossible to appreciate the merits or demerits of the various modes of correcting the deviation of the compass which have been brought before the public from time to time.

The Properties of Magnets.

The most obvious properties of the magnet are:—1. *Polarity*; 2. *Attraction and Repulsion* of other magnets at their respective poles; and 3. The power of communicating similar properties to iron and steel bars by touch or friction.

(1.) *Polarity*.—When a magnetic bar is delicately poised on a centre, so as to move freely in a horizontal plane, it will, after a few oscillations, assume a determinate direction north and south. This direction is called the *magnetic meridian*. The end pointing northward is termed its north pole, and the end pointing towards the south is designated its south pole.

(2.) *Attraction and Repulsion of other Magnets*.—If to a magnet placed on a centre we bring the pole of another magnet within a certain distance of it, we find that their *similar poles repel*, and their *contrary poles attract*, each other. This is a well-established magnetic law.

(3.) *The power of communicating similar properties to other bars of iron and steel* by friction or touch.—If a bar of soft iron be placed at the end of a magnet it will immediately acquire *polarity* corresponding to the position in which it is placed. This polarity, however, is transient, and will only continue as long as the soft iron is under the influence of the magnet; but if hardened steel be placed in the same position it will acquire and *retain* the induced polarity. If magnetised to saturation the bar will be a permanent magnet, and will have the power of communicating similar properties to other bars of steel *ad infinitum* without causing the least diminution in its own magnetic powers.

The general conditions of a magnetic bar may be roughly illustrated by means of iron filings delicately strewn on a sheet of paper placed over the bar. The particles of iron will be arranged by the magnetic force surrounding the bar into a series of beautifully curved lines on each side, radiating outwards from the ends.

If the north pole of one bar be placed opposite the south pole of another there will be an attraction. The curves of their mutual

attraction are shown by the iron filings. If the north poles of two magnets be placed in opposition they will cause a strong repulsion; and if iron filings be strewn or sifted on a paper laid over their poles they will represent the appearance of two brushes forced against each other at the ends of their bristles. Similar appearance is shown by iron filings in the repulsion of two south poles.

In order to render these phenomena of magnetic actions more clear and demonstrable, we must substitute for iron filings a series of small compasses, placing them in various positions round a magnetic bar. By this means we shall be more able to trace the general character and the extent of these curious magnetic curves, and the direction of the lines radiating at the poles.

The small compasses, when undisturbed, point north and south, but the moment a magnet is placed in the centre their direction becomes changed.

The same kind of curves may be seen in the vertical plane, and can be traced by small dipping needles.

In a magnet $6\frac{1}{2}$ inches long, $\frac{1}{2}$ inch wide, and $\frac{1}{8}$ inch thick, the radiating or fan-like lines at the ends of the bar, which are sometimes called "magnetic brushes," extend from the centre to a distance of about 2 feet 3 inches, and expand to a corresponding width at both ends.

The general appearances of these magnetic curves and radial lines, together with the mutual disturbances produced by magnets on each other, at a distance of 2, 3, and 4 feet apart, *indicate the existence of a subtle fluid passing through the bar.* The centre of the force moves in a direct line in the meridian, while the *external* part of the force continues to circulate and flow from pole to pole round the magnet.

Professor Faraday, in his brilliant magnetic experiments, found when the flame of a wax taper was held near the axial line between the poles of powerful magnets, that as soon as the magnetic force was exerted *the flame receded from the axial line as if a gentle wind was causing its deflection*, thus indicating the presence of a subtle fluid.

Indeed, *a small needle can be retained in the centre of a helix of a battery without any apparent support.* This phenomenon can only be accounted for by the presence of a dense magnetic fluid concentrated within the spiral by the electro-magnetic force.

On a line at right angles to what may be called the equatorial part of the magnetic bar is a *neutral space*, at a distance from the centre, equal to the length of the bar. This neutral space, in which a small compass loses its directive form, forms an equatorial ring round the bar, whose radius is equal to the length of the latter. Neutral space marked +, +.

If a compass be placed within a broad iron ring or a cylinder, although magnetism cannot be isolated, the iron will derange the normal uniformity of the direction of the terrestrial magnetic currents, and this derangement will necessarily disturb the polar action of the needle. The effect would be like placing a perforated screen round a wind-vane, which would admit the air and the wind, but would alter the

directive force of the wind and destroy its uniformity. It will be observed that the small compasses are controlled by the curves and radial paths of the artificial currents created by the magnets, and not by the terrestrial currents; hence the *directive* property of a compass-needle may be compared to the indication of the wind-vane. The latter is made to show the direction of the wind, *the magnet*, in like manner, *indicates the direction of the terrestrial magnetic currents by the action of their circulation, and not from any inherent principle of its own.*

The Apparent Cause of the Attraction and the Repulsion of a Magnet at its Poles.

It has been shown, by means of iron-filings and by small compasses, that a magnet displays a very beautiful series of curves or fan-like figures at the ends, which indicate the constant passage of the magnetic force, or current, from pole to pole.

We are able to ascertain the *direction* in which this magnetic current *moves* by means of percussion, and by electro-magnetic currents.

If we sharply strike with a hammer the end of a bar of soft iron, or a common kitchen poker, and make it vibrate from that end to the other, the percussion will induce a temporary *polarity*. It matters not in what position the bar is held, the effect is the same—*the end struck will be its South pole*. It is, therefore, evident that the blows on the end of the bar propagate a vibrating internal action from that end towards the other, inducing magnetic action in the direction of the vibration along the bar. If we then place the bar on a centre, it will take a meridional position, and *the end hammered will point towards the South*. Hence, according to percussion experiments, the magnetic force penetrates the bar from South to North.

If we give a few blows on the opposite end, its polarity will be immediately reversed—*the end last hammered will always point to the South*.

The existence of this meridional force from South to North penetrating the magnet, is further confirmed by electro-magnetic experiments.

By employing spiral coils and batteries of sufficient power, any steel bar may at once be magnetised to saturation. The *polarity* thus given to the bar *depends on the direction of the electrical current* with reference to the axis of the helix, or spiral coil.

In magnetising by friction and percussion an *internal current* is generated, and made to pass through the bar from South to North. But when we magnetise by means of a battery and a spiral coil, it is done by intensifying the action of the *returning external currents* surrounding the magnet. The currents generated by the battery unite with the circulating currents of the magnet as they emerge and radiate from the North end, and move backwards to immerge again into the South end of the bar; but their unity and intensity of action cause the circulating returning currents to move in spiral paths, and not in

meridional lines according to the normal action of the polar force.* Consequently the direction of the movement appears contrary to that passing through the axis, although it forms a part of the same circulating action.

This external spiral action of the electro-magnetic currents has given rise to various electrical machines—the rotation of magnetic globes, &c. By the aid of electrical instruments we can imitate in glass tubes the phenomenon of the polar lights, or aurora borealis.

The electric and magnetic forces are necessarily closely related. Although the one is exerted in a *spiral*, or obliquely to the movement of the other, yet their united actions immerge into the same focus.

The most powerful method of developing magnetism in iron and steel, without the aid of ordinary magnets, is by means of the electro-magnetic spiral coil.

This brief description regarding the direction in which the magnetic currents move, will be sufficient for the present to show, that the movement is *from South to North in the magnetic bar*. It is important to bear this fact in mind, in order to comprehend the phenomena of magnetism,—viz., *polarity, attraction, and repulsion*.

The magnet having acquired polarity from some mysterious changes in the internal molecular conditions, favours the passage or transmission of the surrounding natural magnetic force from its South end towards the North end. This polar property of the magnet has the power of drawing, as it were, a volume, of about two feet in diameter, of the subtle magnetic fluid to its South end, which issues out again at the opposite North end, where it radiates or expands in a fan-like or brush-like shape to its original dimensions.

Hence the magnetic force, as it moves in the meridian, appears to converge at the South end of a magnet and to emerge at the North end. Thus the needle is held and retained in the magnetic meridian by the northerly movement of the magnetic current.

If the dissimilar poles of two magnets be placed opposite each other, their mutual actions conform, and, consequently, there will be an attraction. Two similar poles will repel one another, the direction of the currents being opposed.

The reason why iron filings or soft iron are attracted alike at both ends of a magnet is, because they are polarised on the instant of contact, and acquire the property which is possessed by a magnet of an opposite pole—namely, an attractive polarity.

Soft iron, temporarily magnetised, will attract and repel similar poles in *small* needles for a short time, but if brought near a powerful magnet, its polarity will be destroyed in a few minutes, or even seconds.

If a long magnetic bar be cut into small pieces without injuring its internal molecular conditions, each part will be found a perfect magnet. The transmission of the magnetic force in each part will

* The angle of the terrestrial spiral appears to be about 20° from the plane of the equator towards the N. W.

conform with that of the original bar. This is proved by means of broken magnets.

Numerous experimental proofs could be given, to show that the magnetic force is transmitted from South to North through the magnet, and that its polarity, attraction, repulsion, and their curves, depend on the continuous action of the terrestrial magnetic force from South to North in the magnetic meridian. Hence the magnetic force appears to enter the South end, penetrate the magnet, to emerge again at the North end, and so to proceed in its everlasting circulating course over our globe from pole to pole.

Terrestrial Magnetism.

It is well known that if a bar of iron be placed in the direction of the magnetic meridian, and be left in that position for a certain period, it will acquire *polarity* from the magnetic currents of the earth. This effect is not confined to bars of iron, but is also observed, in a greater or lesser degree, in all ferruginous rocks in the primary formation. The *loadstone* is an oxide of iron found in the crystalline rocks. It is a natural magnet, capable of retaining its polarity like hardened steel. Oblong pieces of compact ferruginous rocks, like loadstones, if delicately suspended, or made to float on quicksilver, will point North and South, like the magnetic needle. *It is also a remarkable fact that this polar direction corresponds with the meridional direction of the same rocks in situ.*

Hence from these facts and numerous others which might be mentioned, the earth may be regarded as a spherical magnet, with a powerful magnetic axis in its centre of rotation. This magnetic axis necessarily causes a universal circulation of its currents from pole to pole; and as these currents are found to move from South to North, the action of the North pole of the earth corresponds with that of the South pole of a magnet, *i. e.*, is an absorbing pole, towards which the currents converge into the axial focus.

It cannot be expected that the magnetic meridians of our globe (see the variation of the Admiralty) should strictly coincide with the true meridians as seen on an artificial globe. The various atmospherical changes, oceanic movements, and geological disturbances, &c., would preclude the possibility of such uniformity in the direction of the force from South to North. Notwithstanding these disturbing influences however, the meridional action, or the movement of the terrestrial currents from pole to pole approximate, as a whole, so closely to the true meridian lines, as to entitle their paths to be called the "magnetic meridians." They converge within the Arctic Circle, and reasoning from analogy, founded on experiments on the "dip," &c., of an artificial globe, the end of the terrestrial magnetic axis must be at least 20° in diameter.

It is a great mistake to suppose that a magnetic pole is a mere mathematical *point*. There is nothing in the laws of magnetism

founded on direct observation on artificial magnetic globes, or in the earth itself, to warrant such an assumption.

It is generally supposed that a magnetic North pole has been discovered, in latitude 70° in the western hemisphere, because a dipping needle was found to approximate to an angle of 90° . Magnetic dipping needles would assume a vertical position over the *whole area* of a polar axis—like pins in a pincushion—and not over *one mathematical point* alone.

The charts of "variations" are not made to represent the *direction of the magnetic force*. The lines are intended to *connect points of equal degrees of magnetic variation*. For the study and proper comprehension of the phenomena of terrestrial magnetism, charts representing the *undulating direction* of the magnetic force from pole to pole should be prepared, and also on the polar hemispheres. According to observations, the greatest "variations" from the true meridian are in the northern part of the Atlantic between Europe and North America. In the Eastern Hemisphere, from Tasmania to the Arctic shores of Siberia, the magnetic meridians more or less coincide with the true meridians. They commence to deflect towards the West in the Indian Ocean, Africa, and Western Europe, as will be seen on reference to the maps. The "variations" in the Pacific, as a whole, deviate but slightly towards the East.

It must be borne in mind that the charts of "variations" are not by any means strictly correct *inland*, more especially in Africa, Southern Europe, and America. Again: the "variations" are perpetually changing, not only inland, but also along coasts, and in archipelagoes. The writer detected an alteration of $2^\circ 30'$ in an easterly variation which had occurred during fifteen years on the Western Andes.

The mariner may in mid-ocean take the chart of variation as his guide; but in approaching coasts, and especially the South-East Coast of Australia, he must be watchful, and be guided by direct observations, as the *undulations* of the magnetic force (by which the compass is directed) are very variable.

The deviation of the compass from its normal direction is not caused by any attraction acting *directly* on the needle. The *needle itself* cannot be affected by any local attraction at 20 feet distance. It is the *undulation* of the magnetic force that disturbs the action of the needle. This disturbing influence may occupy a width of many miles along a highly ferruginous coast.

We have shown that the globe is a natural magnet, with a magnetic axis, and that its magnetic force or circulating currents move from South to North, and complete the circuit of their activity through the medium of the magnetic axis, in the same manner as observed in an artificial globe. All magnetism is derived directly or indirectly from the magnetism of the earth. This natural force will polarise a steel bar, and convert it into a needle for pointing North and South, if left to its sole controlling power, and free from local attraction, and will render it a permanent magnet.

Deviation of the Compass.

"Deviation of the compass" is a term now used to denote the error of the compass, caused by the attraction of the iron of the ship, whether that iron be employed in her construction, in her equipment, or placed on board as a cargo.

Iron ships, like iron bars and girders, if constructed or placed for a certain time in the meridian, will acquire *polarity*. This polarity will necessarily affect the compass, and cause a deviation from its proper direction to a degree proportionable to the amount and proximity of the disturbing cause.

The *permanency* of polarity, however, depends on the nature of the iron. It is only when iron is converted into *steel*, and then *hardened*, that it becomes capable of retaining *permanent polarity*.

The general character of the iron with which a ship is constructed possesses little of those qualities which are essential for the production of a permanent magnet. Consequently permanency of polarity could not be anticipated in any iron ship.

The only way in which a permanent weak polarity might be induced and retained by an iron ship (if that was desired) would be by fixing two powerful magnets—screwing one against the iron at the extreme point of the bow, and the other at the extreme point of the stern of the ship.

When a ship is removed from dock, and its position with reference to the meridian reversed, if it be again subjected to hammering, or even to the concussion of the battering by heavy seas, the polarity acquired when in the dock would be destroyed.

As the *acquired polarity* of an iron ship from induction and position is generally acknowledged to be the principal cause of the "deviation," and of the danger attending the sailing of a new iron ship, the writer recommends the application of an *electro-magnetic battery* to destroy the ship's polarity immediately after launching or before leaving the dock.

We are able to reverse and destroy instantaneously the polarity of soft and ordinary iron of any shape or magnitude by means of a battery. The same can be applied to an iron ship, and thus put an end to this cause of the deviation. The magnetic "brushes" at the poles of iron girders and iron ships, are not so large in proportion as those seen at the poles of the magnets. They are but feeble and transient when left undisturbed.

If then the *polarity* of the iron ship be thus destroyed it follows that it matters not in what direction the vessel might be constructed. When the induced polarity is neutralised or destroyed, the necessity for "swinging" and the making of tables for correcting the "deviation" arising therefrom, will be obviated, and the main cause of the existing dangers attending new iron ships from the errors of their compasses, will be removed.

On the Position of the Steering Compass on board an Iron Ship.

The directive property of a magnetic needle, as already stated, depends solely on the direction of the terrestrial magnetic force. If, therefore, the latter be affected by any disturbing influence, the former cannot retain and preserve its normal meridional position. This fact does not require further explanation, as it is capable of being easily proved by very simple experiments.

It follows from this that a compass for steering correctly, should be placed in such a position on board a ship, as would preclude the possibility of any disturbing action from the steering gear and other iron employed on board. Precautions are taken to construct the binnacles of wood and brass, and to avoid iron, but seldom any regard is paid to the position in which the needle should be situated. Unless the compass is placed several feet from iron, so as to be free and beyond the reach of local attraction, it cannot conform to the meridional prime mover.

In merchant ships the steering compass is generally placed near the stern-post, the rudder-head, the tiller, and the iron spindle of the steering-wheel,—all of which are more or less magnetic. This is a position where the local attraction and disturbances are often excessive and changeable, and in which no navigating-compass should be placed.

In the "Memorandum" of the Royal Society it is "recommended that every iron passenger ship should be required to have a standard compass, distinct from the steering-compass, in a selected situation at a certain distance from the masses of iron;" "and to use this as the navigating-compass, prohibiting the use of a steering-compass."

If the incorrect steering-compass be not taken away, and some convenient arrangements made, by which the steersman can steer by looking at the standard, the evils will not be removed. A wreck has recently occurred of an iron steamer, in which was placed a standard-compass twenty feet high, fastened to the mast, free from all attraction, and found to be exceedingly correct. The steering-compass, on the other hand, was surrounded with strong magnets and iron chains, and consequently rendered uncertain in its movements and direction; yet the latter was used for steering! In the Merchant Shipping Act it is provided that "every sea-going steamship employed to carry passengers shall have her compasses properly *adjusted* from time to time," &c. Strictly speaking, compasses *cannot be adjusted* or be made to act correctly by any artificial contrivances, as already demonstrated, and, therefore, they should not be tampered with. It should be provided that every sea-going steamship employed to carry passengers should have her steering-compass placed at a certain distance from the steering gear and from all masses of iron, and such arrangements made as would enable the helmsman to see the compass-card, like the dial of a clock, many feet above the deck. This is the only way to remove the danger, as it is well known that steersmen will only be guided by the steering-compass, and not by the standard; the latter being generally

very inconveniently situated for the man at the wheel. Large sums are often spent in ornamental brass binnacles, chain boxes, magnetic compensators, whilst the compass is placed in a confused magnetic medium. The gimble-box might be raised at a small cost on a high wooden post, or fastened to the mast from 10 to 20 feet high, and thus be free from all disturbances, and it could then be depended upon for steering. The outlay would be slight, and the benefit very great. Two compasses might be placed on the mast, one on each side, about 6 feet apart, with their cards seen like the dials of clocks, and illuminated at night, so as to be plainly read by the steersman.

By means of this arrangement the helmsman would have the constant and full benefit of a standard-compass to steer by, which cannot otherwise be ensured in stormy nights in the mercantile marine, whatever they may do in the royal navy.

Many thousands of pounds are most liberally expended, even on the ordinary fittings of iron vessels, their decorations, and also in a number of ornamental binnacles with compasses varying in their direction from one to two points, without bestowing the least consideration on the *position* in which a compass should be placed to ensure the safety of the ship and the passengers. In some of the steamers running between England and the Continent, the binnacles, as already stated, are within thirty inches of the steering gear and the deck beams. The steering compasses are then sometimes so sluggish as to require the "watch" to hammer the binnacles to make the cards move. It is time that such a state of things should be more generally known and corrected. If, as I recommend, we first remove or destroy the transient polarity acquired by an iron ship in building, and then place the compass-box from 10 to 20 feet high, either on a post or against the mast, as may be found most convenient, the entire difficulties arising from "deviation" will be got over.

There are several modes by which the compass-cards may be rendered visible and easily read at a high elevation above the steering-wheel, which I need not describe on this occasion.

It is sufficient, at present, to indicate how the difficulties from deviation on the local attraction of the steering gear may be overcome by placing the steering-compass at a higher elevation and in such a position as would allow it to be under the sole control of the earth's magnetic force. This is the only method by which the compass can be made to act correctly, and retain its meridional direction on board an iron ship.

The Vibrations of Compasses.

The vibrations of the common *flat* needles, which are generally used in ordinary vessels, are excessive. Their frequent unsteadiness during stormy weather renders it difficult to steer correctly. In the third report from the Liverpool Compass Committee to the Board of Trade we find the following remark:—"The agate cup in which the pivot rested had been filled up with brickdust, for the purpose, it was stated, of steadying the card, so that, when examined, it was found that the

vibration from the screw and the grinding of the brickdust had made a hole completely through the agate!"

The general impression is, that excessive oscillation can only be diminished either by an increased *friction* or *increased weight*. Hence, heavy brass cones (called bells) are screwed under the centre of the needle, the weight and the shape of which make it steadier and reduce the number of oscillations.

The fluid-compass is another contrivance to check vibration and to ensure steadiness in the action of the card.

Had the laws of magnetism and the mode in which the magnetic force acts on the needle been better understood, the troubles attending excessive oscillation might have been obviated without increasing the friction or the weight, as will be observed by the results of the following experiments.

The following needles were placed in succession to oscillate from East to West on the same pivot. They were drawn delicately by means of a magnet from their line of rest in the magnetic meridian to an angle of 90° , say East or West, and then allowed to oscillate until they returned and remained at rest in their original position. They were protected from all external disturbance by a glass shade cover.

All the needles were of the same length, viz., $6\frac{1}{2}$ inches long.

	No. of vibrations.	Time occupied.
Flat needles $\frac{1}{4}$ inch wide, and $\cdot 1$ inch thick, made	60	420 seconds.
The same size needle placed on <i>edge</i>	20	175 "
<i>Edge</i> needle of the same weight, but thinner and broader ($1\frac{1}{4}$ inch deep)	14	104 "
<i>Edge</i> needle, very thin, $1\frac{1}{4}$ inch deep	12	90 "
Ditto, angular needle, with a conical card	10	70 "

By placing the needles on *edge* instead of *flat*-ways we not only check the tendency of excessive oscillation, but also increase the directive power, and thus make it coincide more accurately with the currents of the magnetic meridian.

These important objects are effected (1) by presenting a greater surface for the resistance of the air, And (2) by the increase of directive power, caused by lateral contraction and vertical expansion, of the magnetic "brushes" at each end of the bar.

It therefore follows that compass-needles, to insure steadiness of action and strong directive power, should be made to hang on edge, and that flat needles should not be used for steering purposes.*

The *double-bar* cards are steadier than the *single-bar* cards, even when of equal weight; and possess a stronger power of retaining their meridional position, when exposed to local attraction and other disturbances. The compound magnetic "brushes" expand and increase the extent of the circulating currents. Consequently the directive power has a longer meridional range. The neutral ring is also greater in proportion than that surrounding a *single-bar* card.

* This refers to *straight flat* needles.

A card with double-bars $1\frac{1}{2}$ inch in width is very sensitive and powerful in its directive force.

These broad needles may carry a card like a circular band, with the cardinal points marked thereon, so as to be read at a distance.

Bent Compasses.

It is well known that the *straight* horizontal needle becomes sluggish, indeed totally inactive and useless, and therefore unfit for steering in very high latitudes, consequent upon the rapidly increasing dip of the magnetic force as it descends towards its polar focus. Even in the Gulf of St. Lawrence, in the parallel of about 50° N. (where the dip is 78°), the ordinary compass cards become very uncertain in their direction from the sluggishness of their action. This effect proceeds from the high dip in that region, causing a feeble horizontal or tangential force. Occurring in a region in which, from the frequent prevalence of fogs, a vessel must often depend entirely on her compasses, unusual loss of ships is thereby caused in that quarter of the globe. To remedy this defect I propose to bend the needle to the average angle of the dip. The bent needle will act freely, with a much stronger directive force, in high latitudes, than the straight needle, or even the "beam" compasses. Even a *flat* needle, if *bent to the angle of the dip* at the centre, will not only have its directive polar power increased, but its vibrations will be reduced to one third. The compass-needles of all ships confined to the northern hemisphere should have their North end bent to the angle approaching to the "dip," to obtain the maximum magnetic force.

I shall now briefly recapitulate the remedies proposed for removing the difficulties connected with the disturbances of compasses on board iron ships.

(1.) To neutralize or destroy the *polarity* acquired by an iron ship in building, by means of a powerful electro-magnetic battery.

(2.) To rise the steering-compass to such an elevation as will place it beyond the reach of the influence of the ordinary attraction of the wrought iron of the vessel.

(3.) To place a reflector near the compass, so that the card may be seen like the dial of a clock, and correctly read, at a distance of 20 feet and upwards from the steering-wheel.

(4.) To place a dumb card in front of the steering-wheel, for setting the course of steering, for the guidance of the helmsman, so as to avoid mistakes from verbal directions. The compass-card and the dumb-card of course being made to correspond with one another.

(5.) To make and apply such compass-needles as I have described, of the strongest directive power, so as to avoid unsteadiness and excessive oscillation.

(6.) To employ *bent* compass-needles adapted for steering in high latitudes, where straight needles are found sluggish in their movements, and necessarily often incorrect in direction.

In conclusion I would beg leave to observe, that in these days of

general intercourse and competition, when all the people of the earth are launching forth to meet us on the great oceanic highway of commerce, we should not only foster and encourage the skill of our seamen, but also provide them with the best appliances and nautical instruments which this scientific age can produce. The anxiety and dangers attending the seas are sufficiently great at best under the most favourable conditions. It is therefore our duty to do all we can to mitigate them, and especially in vessels employed to carry passengers. The first and most important among the requirements of a ship's instruments is a compass which will at all times conform with the magnetic meridian. A chronometer is as dust in the balance, in comparison, because, in most cases, its results are only relied on when danger is not apprehended. Therefore it is as imperative to provide a proper place for the steering-compass as it is for the rudder, and it is quite time that this subject was brought more rigidly under official scrutiny in all iron vessels intended to carry passengers not only in long voyages, but also in vessels employed in the channels.

Absolute freedom from all dangers from inconstant "variations" may not be attainable; it is, however, in our power, to modify and remove a very great portion of the existing difficulties and dangers connected with compass errors, and so to reduce the number of those formidable risks and deplorable wrecks, which may well make us tremble for the safety of the vast fleet of iron vessels, with the inestimable amount of lives and property now constantly afloat on the ocean.

THE LIFEBOAT WORK.

People who live under paternal governments, and who are accustomed to look to the State for protection and guidance in all the emergencies of life, would be strangely perplexed to witness the magnificent manner with which some of our great benevolent institutions are supported and managed in this country. When the stormy winds rage round our coasts, as they have done of late, thousands of Englishmen are in peril of their lives, and can often only be rescued from death by an organised lifeboat system of succour and relief.

We accordingly have pleasure, at the conclusion of one of the most stormy seasons on record, in again calling public attention to the National Lifeboat Institution, and to the great results of its labours during the year that is past, and again its active committee and officers gratefully acknowledge the blessing which Divine Providence has bestowed on their endeavours to rescue human beings from death by shipwreck. The committee naturally feel great need of the continued encouragement and aid of their fellow-countrymen, as they are deeply

sensible of the responsibility involved by the important work which they have undertaken to pursue on the coasts of the United Kingdom.

At present the institution is infinitely more than an office or an agency. It is an organisation of intelligence, a focus to which information converges, and a centre from which it radiates. By the circulation of facts which it maintains, it interests the whole public, awakens sympathy, excites to effort, and is continually submitting itself and its work to general supervision. It lives on its proper merits, and every shilling it receives may be said to be given under Mr. Lowe's valuable law of "payment for results." Thus, though it may be possible at the present moment to say that the institution has not reached this or that place to supply its wants, we are to remember that it is chiefly owing to what the institution has done to interest the public in the subject, that isolated cases of deficiency attract notice; while the principle of progress at work in it is a guarantee that at no distant date every want will be supplied.

As in late previous years, the most noticeable feature in the history of the institution during the past twelve months is the large number of splendid gifts of the entire cost of new lifeboats presented by individuals or by inland towns, that have desired to show their sympathy with the cast-away mariner on our shores, and to take some share in the work of affording him help in the hour of his need.

The committee notice the circumstance of the formation of a society similar to our own on the shores of France—"La Société Centrale de Sauvetage des Naufrages," with the gallant Admiral Rigault de Genouilly acting as its president, and which body already possesses no less than eleven lifeboats on the self-righting principle, all of which have been built by Messrs. Forrest and Son, under the direct superintendence of this institution.

In common with the generality of the British public, the institution regrets the loss sustained by the community at large by the death of Vice-Admiral Fitz-Roy, F.R.S., whose laborious and zealous exertions, in the Meteorological Office of the Board of Trade, so greatly contributed to the benefit of the shipping community by the establishment and practical working of the system of "International Meteorologic Telegraphy;" by which the approach and direction of storms were foreseen and made known, with considerable accuracy, to all the principal seaports of these islands.

The details of the year's proceedings of the institution may be stated as follows:—

The large number of thirty-seven new lifeboats have been built, and most of them already placed on the coasts of the United Kingdom. Of these, nineteen have been provided to new stations; seventeen have replaced worn-out, decayed, or unsuitable boats; and one was sent to the Lizard Station, where the previous boat had been knocked to pieces on the rocks. The stations to which these boats have been sent, or are about to be sent, are as follows:—

ENGLAND.	
<i>Northumberland</i>	Holy Island North Sunderland Hauxley Newbiggin Cullercoats Tynemouth, No. 2
<i>Durham</i>	Whitburn
<i>Yorkshire</i>	Runswick 10 Uppang Bridlington
<i>Norfolk</i>	Bacton Hasborough
<i>Kent</i>	Ramsgate Walmer Kingsdown
<i>Sussex</i>	Rye Shoreham Worthing Selsey
<i>Hampshire</i>	20 Hayling Island
<i>Cornwall</i>	Lizard St. Ives

<i>Cornwall</i>	Hayle
<i>Devonshire</i>	Ilfracombe

WALES.

<i>Merionethshire</i>	Aberdovey
<i>Anglesey</i>	Cemlyn

<i>Cumberland</i>	Whitehaven
<i>Isle of Man</i>	Castletown

SCOTLAND.

<i>Wigtonshire</i>	Port Logan
<i>Aberdeenshire</i>	30 Peterhead
<i>Forfarshire</i>	Arbroath
<i>Fifehire</i>	Anstruther

IRELAND.

<i>Co. Down</i>	Ballywalter
<i>Wicklow</i>	Wicklow Courtown
<i>Wexford</i>	Cabore 87 Rosslare

The institution has in addition extensively advertised its readiness to establish and maintain a lifeboat station on any part of our coasts where need could be shown and local agency provided. It must be remembered, however, that a boat is nothing without a crew. A lifeboat station requires not only a lifeboat, but seamen to man her and residents to superintend operations. The institution, it is obvious, can supply only the first want—the others must be satisfied on the spot; and here lies the real difficulty, for money cannot always purchase what is requisite.

Boat-houses and transporting-carriages have been likewise provided for nearly the whole of the above boats.

The lifeboats of the institution now number no less than one hundred and sixty-two. Through their direct instrumentality, *five hundred and thirty-two* lives have been saved during the past year, nearly all of them under circumstances when no other description of boat could with safety have been used. They have likewise been the means of saving twenty vessels, and on eighty-five other occasions have proceeded to the assistance of vessels showing signals of distress, or being in apparent danger, but which did not ultimately need their aid. For these services, and for the saving of one hundred and eighty-two lives by shore-boats and other means, the institution has granted rewards amounting to £1,790.

Whilst expressing their thankfulness for this glorious harvest of human lives which has been the reward of their exertions, and whilst feeling doubly grateful and thankful that it has been gathered in without the loss of a single life to those brave men who have voluntarily risked their own lives at the institution's call, the committee yet deeply

regret having to report that at the beginning of the year three men were lost from the crew of the small lifeboat stationed at the Lizard Point, in Cornwall, by the upsetting of their boat, when performing the quarterly practice—a service which has been found indispensable to give the crews of the lifeboats a practical knowledge of their properties and requisite management, and to maintain them in a general state of efficiency. This unfortunate accident was, it is feared, caused by the imprudence of the coxswain, who unhappily perished on the occasion; but the committee feel that accidents must be expected sometimes to occur; and they have been forcibly reminded by this calamity that, although they provide those who man the boats with every known means of safety, yet that the work in which they are called on to engage must ever be one of more or less peril, and that it therefore entitles the brave and hardy men who engage in it to the credit and praise which have ever been awarded to those who have exposed themselves to danger for the benefit of others, or for the public weal. As illustrative of that danger, and of that courage and determination which can overcome it, the committee cannot refrain from referring to the case of the St. Ives lifeboat, the crew of which, when endeavouring to save the lives of those on board a French schooner on Hayle Bar in October last, although their boat was twice upset and they themselves thrown into the sea, yet twice regained her, and nobly persevered in their efforts until all but one of the French crew were in their boat, that one having perished in attempting to reach her.

As usual, shipwrecks have been during the past year very numerous on the coasts and in the seas of the British Isles. It appears from the Wreck Register of the Board of Trade that they amounted to 1738, attended with the loss unhappily of 472 persons.

It is, however, an encouraging fact, that the preservation of life from shipwreck continues steadily to make progress, and that the average loss, instead of being as in former years 1000 per annum, is now not more than 600.

With regard to the operations of the institution in this very important duty, the fact that the large number of 532 lives* have been saved in

* During the year 1865, the lifeboats of the institution were instrumental in rescuing the crews of the following wrecked vessels:—

Fishing-boat, of Berwick-on-Tweed—saved vessel and crew	6	Schooner <i>Emma</i> , of Barrow	5
Brig <i>Elizabeth</i> , of Shields—saved vessel and crew	7	Yawl <i>Matchless</i> , of Newhaven—saved vessel and crew	3
Lugger <i>Marie François, le Père Samson</i> —saved vessel and crew	4	Brig <i>Hants</i> , of Odessa—saved vessel	8
Brig <i>Willie Ridley</i> , of Plymouth	8	Barque <i>Lexington</i> , of Nassau—assisted to save vessel and crew	14
Schooner <i>Susan</i> , of Dublin	4	Brig <i>Border Chieftain</i> , of Hartlepool	8
Smack <i>Leader</i> , of Harwich	1	Schooner <i>Delila</i> , of Nantes	7
Schooner <i>Anga</i> , of Norway—saved vessel and crew	4	Brigantine <i>Eclipse</i> , of St. Ives	2
Barque <i>Amana</i> , of Sunderland	18	Schooner <i>Pfeil</i> , of Blankanese	7
Schooner <i>Albion</i> , of Teignmouth	6	Schooner <i>Kate</i> , of Lynn	4

1865, exclusively by its lifeboats, bears ample testimony to the activity and success with which these services have been performed.

Again: 182 lives have been saved in the same period by fishing-boats and other means,—a result due, in a large measure, to the encouragement the institution gives to their crews to put forth their utmost efforts to save human life.

This large number of 714 lives is entirely independent of the 180

Schooner <i>Teazer</i> , of Goole . . .	1	Belgian brig <i>Espoir</i>	11
Ship's boat in Redwharf Bay, Anglesey	1	Smack <i>Dahlia</i> , of Portmadoc—saved vessel and crew	3
Brigantine <i>Burton</i> , of Wivenhoe	1	Lighter in Dublin Bay	5
Steamer <i>Ocean Queen</i> , of Newcastle	15	Brig <i>Argo</i> , of Fayal—saved vessel	18
Lugger <i>Peep o' Day</i> , of Wexford	6	Barque <i>Drydens</i> , of North Shields	9
Barque <i>Maria Soames</i> , of London	19	Brig <i>Wearmouth</i> , of Sunderland	11
Schooner <i>Speed</i> , of Wexford	6	Brig <i>Commerzieweathin Haupt</i> , of Mecklenburg	6
Smack <i>Agnes and Mary</i> , of Glasgow	1	Schooner <i>Test</i> , of Southampton	5
Sloop <i>Catherine</i> , of Liverpool—saved vessel and crew	4	Brigantine <i>Tabaco</i> , of Hamburgh	13
Schooner <i>Johnson</i> , of Exeter	4	Barque <i>Atlas</i> , of North Shields	1
Brigantine <i>Light of the Harem</i> , of Whitstable—saved vessel and crew	4	Norwegian barque <i>Sirius</i> —saved vessel	9
Brig <i>Steffarria</i> , of Palermo—saved vessel and crew	12	Brig <i>Anne and Mary</i> , of North Shields	23
Schooner <i>Henry Holman</i> , of Plymouth—saved vessel and crew	8	Ship <i>Savoir Faire</i> , of Liverpool	10
Schooner <i>Thomas</i> , of Liverpool	5	Brig <i>Raven</i> , of London—saved vessel and crew	6
Brig <i>Nautilus</i> , of South Shields—saved vessel and crew	9	Schooner <i>Token</i> , of Jersey	21
Brig <i>Harlington</i> , of Sunderland—saved vessel and crew	9	Ship <i>Orso</i> , of North Shields	1
Brig <i>Kathleen</i> , of Hartlepool—saved vessel and crew	6	Smack <i>Mary</i> , of Cardigan	4
Schooner <i>Patrios</i> , of Barth	5	Steamer <i>Barbadian</i> , of Liverpool	8
Sloop <i>Robert Hood</i> , of Newcastle-on-Tyne	2	Schooner <i>Daniel O'Connell</i> , of Arklow	7
French brig <i>Providence</i> , of Granville	4	Brig <i>Zeeploeg</i> , of Hoogez	6
Schooner <i>Earl Zetland</i> , of Almwch—saved vessel and crew	5	Brig <i>Lucy</i> , of Sunderland	1
Schooner <i>Emma</i> , of Barrow	6	Schooner <i>Wilhelmina</i> , of Veesdam	34
Brig <i>Reaper</i> , of Scarborough	9	Ship <i>Tenessarian</i> , of Liverpool	9
Schooner <i>Franklin</i> , of Belfast	4	Brigantine <i>Neptune</i> , of Delaware, U.S.	4
Longships Lighthouse keeper	1	Schooner <i>Tom Cringle</i> , of Thurso	17
Schooner <i>Clara Brown</i> , of Barrow	4	Barque <i>Juliet</i> , of Greenock	16
Schooner <i>Maria</i> , of Hull—saved vessel and crew	3	Barque <i>Norma</i> , of Bremen	7
Fishing coble, of Newbiggin	4	Smack <i>Dieu Protégé Alexandre et Leon</i> , of Dieppe	—
Fishing smack <i>Splendid</i> , of Grimsby	9	Total lives saved in 1865 by lifeboats	532
		During the same period the institution has granted rewards for saving lives by fishing and other boats	182
		Grand total	714

lives saved by the rocket apparatus, which is worked by the coast-guard, and provided by the Board of Trade, who continue to co-operate heartily and zealously with the National Lifeboat Institution.

Altogether nearly 4000 lives were saved last year from various ship-wrecks in the seas and on the coasts of the British Isles by lifeboats, the rocket apparatus, and various other appliances—such as steamers, ships' boats, fishing and shore boats, &c.

The institution expresses deep sorrow at the calamitous loss of life from the foundering of the iron steamship *London*, in the Bay of Biscay, during a fearful storm on the 11th of January last. Like the wreck of the *Royal Charter*, in November 1859, when no less than 455 of her crew and passengers perished—the destruction of the ship *London*, with the loss of the brave Capt. Martin and the 220 people under his charge—has caused woe and lamentation in many a home in these lands.

“On the other hand,” as the *Times* so eloquently remarked at the time, “there is one consolatory reflection, and one only, suggested by the sad records of the frightful disaster of the steamship *London*. If we are tempted to feel that man, with all his boasted triumphs over the forces of nature, is still but the sport of the elements when they put forth their full strength against him, we may find comfort in dwelling on the courage which, inspired by a sense of duty, raises even men of ordinary mould to the moral level of heroes and martyrs. Could a history be written of all the services rendered by the lifeboats of the National Lifeboat Institution, it would contain more golden deeds than Plutarch and his successors ever culled from the annals of war.”

The total number of lives saved during the forty-two years from the establishment of the institution in 1824 to the end of the year 1865, either by its lifeboats, or by special exertions for which it has granted rewards, is as follows:—

In the Year	No. of Lives Saved.	In the Year	No. of Lives Saved.	In the Year	No. of Lives Saved.
1824	124	1829	463	1834	214
1825	218	1830	372	1835	364
1826	175	1831	267	1836	225
1827	163	1832	310	1837	272
1828	301	1833	449	1838	456

General Summary of 1865.

Number of lives rescued by lifeboats, in addition to 20 vessels saved by them	532	£	s.	d.
Amount of rewards to lifeboat crews . . . . .	..	1,670	1	11
Number of lives saved by shore-boats, &c.	162	..	..	..
Amount of rewards to the crews of shore-boats . . . . .	..	120	10	0
Honorary rewards: Silver medals	9	..	..	..
„ Votes of thanks on vellum and parchment	27	..	..	..
	36	714	1,790	11 11
			2	D

In the Year	No. of Lives Saved.	In the Year	No. of Lives Saved.	In the Year	No. of Lives Saved.
1839	279	1849	209	1859	499
1840	353	1850	470	1860	455
1841	128	1851	230	1861	424
1842	276	1852	773	1862	574
1843	236	1853	678	1863	714
1844	193	1854	355	1864	698
1845	235	1855	406	1865	714
1846	134	1856	473		
1847	157	1857	374	Total	14,980
1848	123	1858	427		

Let any one think of the large number of human beings thus rescued, in numerous instances, from the very jaws of death, as in the service so nobly and perseveringly performed by the St. Ives lifeboat before referred to; and let him think, on the other hand, of the fearful calamities that have overtaken the unhappy crews and passengers of the ships *London*, *Royal Charter*, and others, and he will then have some conception of the gratitude which British and foreign sailors, who are constantly exposed to such calamities, express to the National Lifeboat Institution and its supporters, for the magnificent fleet of lifeboats provided on our shores for their succour in the hour of their deep distress. And here it may be mentioned that the lifeboats of the institution have, during the past four years, been manned on occasions of service and quarterly practice by about 26,550 persons, and that out of that large number only six have lost their lives.

An interesting summary is given by the institution of the cases in which honorary and other rewards have been voted. It appears that during the past year, 9 silver medals, 27 votes of thanks inscribed on vellum and parchment, and £1,790 have been granted for saving the lives of 714 persons by lifeboats, shore and fishing-boats, and other means, on the coasts and outlying banks of the United Kingdom.

It is satisfactory to know that our boatmen and fishermen, all over the coast, know now that their exertions in saving life from shipwreck are promptly and liberally rewarded by the National Lifeboat Institution, in proportion to the risk and exposure incurred in the perilous service; and in this way a spirit of emulation and activity is fostered and encouraged on the coasts of the British Isles, productive of the best results to the shipwrecked sailor.

In this important work the committee have continued to receive the prompt and cordial co-operation of their active colleague, Commodore A. P. Ryder, R.N., Controller-General; also of Capt. J. W. Tarleton, R.N., C.B., Deputy-Controller-General, and of the officers and men of the coastguard service, to whom the best thanks of the institution are hereby tendered.

Since the formation of the society it has expended on lifeboat establishments £136,881, and has voted 82 gold and 759 silver medals for saving life, and pecuniary rewards to the amount of £22,140.

The cordial co-operation of local branch committees, which constitute so important a portion of the machinery for the supervision

of the several lifeboat establishments of the institution is readily rendered.

The total amount of receipts of the institution during the past year was £28,932 8s. 3d.: of this noble sum no less than £9,254 6s. 7d. were special gifts to defray the cost of twenty-three lifeboats. We append the list, as it is probably one of the most magnificent lists ever published, and apparently the liberality of the public in this lifeboat work knows no bounds.

	£	s.	d.		£	s.	d.
Holy Island—Lady W.	600	0	0	Worthing—Miss M. Wasey	582	0	0
North Sunderland—Mrs. Anstice	400	0	0	Ilfracombe—G. Jeremy, Esq., & Mrs. Jeremy	400	0	0
Hauxley—Eleanor, Duchess of Northumberland	450	0	0	Aberdovey—Collected in Berkshire, by Captain Stephens and others	489	16	8
Newbiggin—Miss Hopkinson	400	0	0	Cemlyn—Mrs. Vernon	200	0	0
Cullercoats—P. Reid, Esq.	400	0	0	Whitehaven—Miss Leicester	300	0	0
Tynemouth—Collected in Pontefract and Goole, by A. Hale, Esq., and W. Porter, Esq.	200	0	0	Maryport—Henry Nixon, Esq.	550	0	0
Sunderland—Collected in Derby, by W. Peat, Esq., and others	480	0	0	Castletown—Commercial Travellers, No. 2, per Messrs. Bishop, Affleck, and others	262	9	11
Bacton—A Lady, per T. Jones Gibb, Esq.	300	0	0	Peterhead—Dundee <i>People's Journal</i> , No. 1	800	0	0
Ramsgate—Collected in Bradford, by C. Semon, Esq., ex-Mayor	400	0	0	Arbroath—Ditto, No. 2, collected by J. Leng & W. D. Latto, Esqrs.			
Kingsdown—Wm. Ferguson, Esq.	300	0	0	Anstruther—A Lady, (H. H.)	600	0	0
Shoreham—Miss Robertson	300	0	0	Courtown—Collected in Manchester, by Robert Whitworth, Esq., and others	300	0	0
Hayling—Messrs. Leaf, Sons, and Co.	550	0	0				

Amongst the many gratifying donations to the institution since the last report, occur the following, the receipt of which the committee gratefully acknowledge:—

Miss Mary Ann Sanford, per Henry Wittey, Esq., Colchester, £500; Joseph Pease, Esq., Darlington, £100; Lady Maxwell's Contribution Box in the hall of her house, 3rd donation, £2 15s.; the *Quiver Magazine* Lifeboat Fund, per Messrs. Petter and Galpin and the Rev. Teignmouth Shore (on account), £800; X. Y. Z., £100; Offertory at St. James's Church, Ratcliffe, including 240 farthings, the savings of a Sailor's Widow, per Rev. J. Malcolmson, £1 1s.; Lady Martin, in memory of her brother, the late Admiral Sir H. Byam Martin, K.C.B., £100; collected by Master Henry Hall, of Clevedon, and one or two of his schoolfellows, 8s.; a Sailor's Daughter, per Messrs. Drummonds, donation. £100; F. Blockey, Esq., for finding the body of a

gentleman drowned off Baghdad, £5; proceeds of the Devon and Cornwall Lifeboat Bazaar, per Mr. G. P. Rowell, £464 5s.; W. Gore Langton, Esq., £100; Indemnity Mutual Marine Insurance Company, 5th donation, £105; collected by Miss Harton, Highbury, £11 11s.; collected by an Invalid Boy, per Rev. E. S. Currie, Maplestead, £2 16s.; proceeds of a Penny Reading at the Patterdale Working Men's Reading-room, per Rev. W. T. Rooke, £1 17s. 6d.; the Dowager Lady Carew, £100; collected at Bristol by Mr. John Parsons, a bookbinder, amongst his fellow-workmen, £1; collected by a little Girl at St. Ives, per Mr. James Young, 10s.; Penny Readings' Committee at Blockley, per R. B. Belcher, Esq., £5 14s. 9d.; Annie, for those in peril on the sea, £1 1s.; Officers and Ship's Company of H.M.S. *Petrel*, per J. Richards, Esq., R.N., £6 10s.; Miss Florence Nightingale, £20, with her prayer "that God would continue to bless as he had so manifestly blessed the humane work of the Lifeboat Institution;" a Widow's Mite, 2s. 6d.; the Ancient Order of Foresters, additional donation, £90 1s.; a "Middle-class Man," £100; contributions in coppers by Pupils at Surrey House, Littlehampton, per G. Neame, Esq., £2; Osgood Hanbury, Esq., a small token of respect to the memory of his son, who was drowned in H.M.S. *Nerbudda*, wrecked off Cape Agulhas, £10 10s.; Children at the Worsley National School near Manchester, per Mr. J. Baldwin, 12s.; from the Officers of the 7th Rifle Depot Battalion, Winchester, per B. Norton Cartwright, Esq., £15 8s. 6d.; City of Exeter Lifeboat Fund, per Mr. T. B. Gibbs (first instalment), £400; the Sheffield Lifeboat Fund, per T. Jessop, Esq., £300; Scholars of Wesleyan Day School, Bristol, per Mr. Mawbey, £10 13s.; from Hamburg, by "One saved, with God's help, by a British lifeboat from a wrecked steamer," £5; proceeds of a Concert given by some of the crew of H. M. S. *Lizard*, Oban, N.B., per Lieut. J. B. Telfer, R.N., £8 9s. 6d.; A Sailor's Widow, £10; the Oxford University Lifeboat Fund, collected per Rev. G. S. Ward (first instalment), £400; and the Cheltenham Lifeboat Fund (first instalment), collected per Rev. W. Hodgson and Capt. Young, R.N., £400.

Legacies have been bequeathed to the institution during the past twelve months by—

	£	s.	d.		£	s.	d.
Capt. Hugh Brown, Kil-				Richard Thornton, Esq.,			
marnock, N.B.	100	0	0	Old Swan Wharf,			
John Thos. Roper, Esq.,				London Bridge	2000	0	0
Woolwich	500	0	0	Mrs. Frances Gates,			
Mrs. Anne Warner, Wid-				Leamington Priors	5	0	0
combe	250	0	0	Samuel Horton, Esq.,			
Miss Anne Frances Smith,				Priors Lee	100	0	0
Greenwich	50	15	0	Mrs. M. Ruston, King-			
Miss Mary Frances Wood-				ston-upon-Hull	100	0	0
burn, Kensington Park				Miss Jemima Bennett,			
Gardens	300	0	0	Sloane Street, Chel-			
Wm. Hollins, Esq., Over				sea	90	0	0
Wallop, Southampton				J. Jacobson, Esq., Glas-			
(Stock)	500	0	0	son Dock, Lancaster	19	19	0

	£	s.	d.		£	s.	d.
Capt. John Sykes, R.N., Bolsover Street, Port- land Place	100	0	0	James Davidson Shaw, Esq., Newcastle-on- Tyne	400	0	0
Mrs. Betty Coles, Tun- bridge Wells	50	0	0	William Chafyn Grove, Esq., Mere	100	0	0
Thomas Travers Taylor, Esq., Southport	500	0	0				

During the past year £16,259 2s. 11d. were expended on additional lifeboats, transporting-carriages, boat-houses, and necessary gear; £5,478 9s. 11d. on the expenses of repairs, painting, refitting, &c.; and £4,986 1s. 7d. in rewards for services to shipwrecked crews, coxswains' salaries, and quarterly practice of the boats' crews; making altogether, including liabilities amounting to £8,249 2s. 10d. for lifeboat stations now in course of formation, and other expenses, a total of £36,725 17s. 4d.

For a considerable saving in the item of transport to their stations, of new lifeboats and carriages, the committee again express their thanks to the several railway and steam-packet companies, who have most liberally conveyed them to all parts of the United Kingdom, free of charge.

The items of receipt and expenditure are detailed in the financial statement of the institution, fully audited as usual by a public accountant.

It is a great satisfaction to find that, year by year, the sphere of the operations of the institution has continued to extend, and that the public support has fully corresponded with the extension of those labours.

We would, however, strongly urge on all who recognise the sacredness of human life, the duty and even the privilege to help forward the lifeboat work—a work which has hitherto been manifestly blessed by Providence, and which has brought relief to many thousands of men who, instead of being on this very day valuable members of the community, would have been long ago engulfed in the raging waves of the tempest, leaving in many cases widows and orphans to suffer, not only the misery of bereavement, but the pangs of destitution.

THE MARIANAS ISLANDS.—*Rota, Agrigan, Tinian.*

(Continued from vol. xxxiv. page 649.)

Rota Island.—Notwithstanding its small population, the island of Guajan must be considered as the only settled island of the Marianas group; small as it is, the others scarcely deserve consideration compared with it. Hence the rest of the archipelago, interesting as they may be in a hydrographic or geological point of view, are unimportant under any other point, and consist of almost uninhabited islands.

The commander of the *Narvaez* then proceeds with a description

of the rest of the islands of the group, commencing with the southernmost, and proceeding North to Pajaros: and first of Rota.

The island of Rota is twelve miles long and six broad, and the natives are called *Luta*: so that the name of Rota, by which the island is known, would appear to be a corruption of the native name. It is tolerably high, and in my opinion higher than any of the southern islands; that is, higher than Guajau, Agrigan, Tinian, and Saypan. On its western side there is a plain, on which stands the town, which is formed by two streets—viz., Sosanlago and Sosanjaya, each of which front a shore of the island, which is there exceedingly contracted; Sosanlago being to the northward, and Sosanjaya to the southward. It contains seventy-nine houses of cane, thatched with cocconut leaves, a poor hermitage called a church, a house for the curate, a kind of abode called the casa real, and 335 inhabitants, among whom the curate is the only European. The town appears to be without a proper name, but it is called the town of Rota, and by no other.

A vessel may drop her anchor off either of the two streets, which give their names to the anchorages; the northern one being called Sosanlago, and the southern Sosanjaya.

The ground on which the town stands is a very low sandy isthmus, which in bad weather is much flooded by the sea. On these occasions the inhabitants take refuge in a cave near Sosanjaya—a part tolerably high, and return to their huts when the storm has passed; which, in order not to be washed away by the sea, are built on stakes, and stand tolerably high. The cave is a very remarkable one: it is full of crystallizations, and its depth is so great that no one, it is said, has found the end of it. This assertion gains credit from the ground of it being very irregular, full of rocks and deep lagoons; and a person runs a considerable risk in it of breaking his head.

It is said that there is an inactive crater on the summit of the island, the existence of which is very probable, considering the form and nature of the island. However, I have not witnessed it, nor has the present governor of the islands either. The mountain which forms the island is terminated by a kind of table summit; and should there really be a crater there, it must have been several centuries since it was in action, for brambles and trees grow on the sides of it up to the summit and on all sides of it. There are numerous monuments scattered on the sides of the mountain, formed of rudely wrought stone, and which appear to be the sepulchral monuments of a people who inhabited the island, not only before it fell into the hands of the Spaniards, but before it was inhabited by the Chamorros.

The anchorage of Sosanlago is excessively bad. Near the reef which lies off the shore and close to the breakers, which seem scarcely to leave room for a vessel, there is a narrow part on which she may drop her anchor. The bottom is rocky, with patches of sand, and the depth of water is so irregular, that I have found 14 fathoms at the chains when the anchor was dropped in a depth of above 30. The pilot informed me that there are several of these holes in this part,

and that the bottom all round the island consists of sand with coral patches.

The other anchorage—Sosanjaya, to the South of Rota—is quite as bad as this to the North with this difference, that the shore there is of rock and cannot be approached, it being necessary from a vessel anchored at Sosanjaya to bring the boat to Sosanlago, where there is a sandy beach. However, Sosanjaya affords more shelter from N.E. winds; and I think that a vessel of the size of the *Narvaez* requiring to anchor off the island in heavy weather from the N.E. should do so at Sosanjaya, because she will find here more shelter from the heavy sea to which she will be exposed. But if they have to communicate with the shore, the boats will be obliged to round Point Taipingon, making a circuit of three miles, to come and land at Sosanlago.

This anchorage of Sosanlago is the very worst of all that I have seen in the whole of the Marianas, and the seaman may depend on it that they are bad indeed.

Point Taipingon is the high promontory which terminates the tongue of low land on which stands the settlement. The point being precipitous and bold close to, vessels may make as free with it as they please. But not so with the anchorages; in taking which it is necessary to approach lead in hand, and to drop the anchor according to the soundings, in 14 to 18 fathoms. The reefs of the strand are very dangerous, and require a pilot to find out the channels between them.

As to the produce of Rota and the pursuits of the natives I shall give you an extract from a paper from the Padre Ibañez. To me the people seemed to be of the poorest description, wanting even the commonest things, such as clothes, nails, tools, rather than money in exchange for their fowls, plantains, and oranges, the only things to be found here, not excepting water, which is scarce, and very difficult to embark.

This island, says the vicar of the Marianas, somewhat higher here and there than Guam, and very fertile, is well inhabited, and its people cultivate rice, maize, corn, &c., they also make cocoanut-oil, rear pigs and fowls, which, after retaining sufficient for themselves, they exchange with the people of Guam for articles of clothing, kettles, and other household matters; besides which, they dispose of their surplus produce to vessels in exchange for necessaries or money. They also follow the occupation of fishing by a method entirely their own, and take abundance of a fish called achuman, similar to the herring. Their mode of catching them is well worth describing.

Those who follow this fishery have a kind of flattish vessel of white stone, which they fill with cocoanut pulp, cut into small strips, and which they cover over with half of the hard shell, which has a small hole in the upper part for the escape of the pulp, the shell being tied down with lines long enough to reach from the bottom to the surface of the water. Thus prepared, the fisherman proceeds in his canoe to the place chosen for fishing outside of the reef, and lets down the vessel with its cocoanut covering, and as the mashed pulp of the cocoanut escapes by being washed out by the water, the small fry of the fish

are seen busy in devouring it. The same operation is continued for fifteen, twenty, or even thirty days, at the end of which time he has succeeded in forming a nursery of young fish. Then the skill of the fisherman comes into play. On his next visit he takes the cocoanut dish in his left hand and in his right hand a net formed like a bag, five feet deep, with a hoop round its mouth, which is five feet across, in which he places the dish, and they go to the bottom. The fish then hasten to their usual repast over the net, in the middle of which is their dish of cocoanut pulp. Then, while abundance of them are thus engaged, the fisherman, who by the clearness of the water can see what is going on, gently draws up the net and encloses a large quantity of fish, bringing them quietly up to the surface, lands them in his canoe. This kind of fishing employs many of the islanders for the space of five or six months of the year.

They have also other modes of taking fish, which, while they are as primitive as the foregoing, are no less effectual. One of these is the following:—They employ a certain fish, called *lagua*, of a clear light green colour, some three inches or so long and one in girth, and he is kept in a coral enclosure close to the shore, and, moreover, he is secured in his dwelling place by a line being passed through one of his gills. This fish is called by the natives their decoy fish. When they make use of him they have a net of less dimensions than the former, and placing their decoy in it, take him out with their canoe immersed in water, and arrived at their fishing ground they submerge their decoy. Then the first fish that comes makes battle with the decoy fish, which the fisherman perceiving from his canoe, he draws up his decoy fish to near the surface, and then, in the heat of battle between them, the fish at liberty fiercely attacking his decoy, he adroitly introduces a net under them, and the next moment both are in his canoe.

There is much ingenuity in these devices on the part of the islanders for taking fish, which forms a portion of their subsistence. They remind us of the Chinese method of employing a bird, taking care, however, to prevent him from swallowing the fish by simply preventing the distention of the neck that would be necessary to enable him to swallow it, by merely securing a ring round it, which completely does away with all power of enlarging it for the purpose of satisfying his appetite, the fish being, in fact, wanted by his owners.

The town, under the management of San Francisco de Borja, is situated on the low ground of the strand, and is divided into two wide clean streets, called *Sosanjaya* and *Sosanlago*. It has a parish church of irregular masonry, with a thatched roof, and the usual *casa real*, besides seventy houses of wood, with thatched roofs. It contains 335 inhabitants, whom one of the principal inhabitants of Guam visits every two years, and receives twelve reals per month. As the island is deficient of drinking water, the natives form open wells in the town, and if any one wishes for better, he must obtain it from a brook which is about a league and a half from the town.

The island of *Agrigan* is merely a rock about three miles long and half a mile across, very high and precipitous on all sides. It is most

difficult of access, for it has no other landing place than a sloping part on its N.W. shore, where one may get on shore in fine weather. The rest of the shore is formed of vertical rocks, and is more than fifty feet high. It is not inhabited, but abounds in huge crabs and crayfish, which are said to attack any one that lands there.

It is said that this islet was the last of the archipelago of which the Spaniards took possession. The Indians who escaped from the other islands at the time of the conquest took refuge here. They fortified the landing place, and obliged the Spaniards, after several attacks, to haul their vessels alongside the shore and land from the yardarms.

It is quite barren, the ground is rocky, and it is only at its summit there is a little soil, in which a few cocoanut trees find nourishment on which to grow. Nevertheless, the whole surface is covered with briars, which flourish nearly everywhere under the tropics.

Its approaches are tolerably clear of rocks. On its S.W. side there are three vertical ones, of small dimensions, about a mile from the shore, and connected with each other. Between them and the island there is an abundance of depth for any vessel as far as we could see one morning.

The island of Tinian.—Some persons assert that the group of three islands of Saypan, Tinian, and Agrigan, were the only islands visited by Magellan on his discovery of the group. But this is a mistake, having no foundation whatever for it; for, as I have already stated, the island that he saw was Guam, and that he anchored in the vicinity of Agrigan.

Tinian has been celebrated during the last century for its fertility and abundance of flocks.

The English Commodore Anson, in his voyage round the world, arrived at Tinian on the 24th of August, 1702, with his crew suffering from scurvy,—and the vessel, in fact, was a moving hospital. Thanks to the fresh provisions which he obtained there in abundance, cattle, pigs, fowls, plantains, oranges, and cocoanuts, along with the bread-fruit, called rima by the natives, the *Centurion's* crew were completely restored in a week. Many springs of excellent water, besides open wells of the natives, contributed to replenish the water casks of the *Centurion*, which remained at Tinian until the end of October, resting from the fatigues of their voyage. Lord Anson anchored in the harbour called Sunharon, and to which the English then gave the name of their commander (Anson Road), according to their usual custom of naming all places that they visit after their own countrymen.

The island of Tinian is described in Anson's voyage in the most flattering terms,—little less, in fact, than a garden of enchantment. Such a description was certainly quite natural. The arrival of the *Centurion* at Tinian could not have been more opportune, and her whole crew were much indebted to the island for saving them from a miserable death.

Guided by the account which Anson gave of it, the expedition of Lord Byron arrived there in 1763. Everything had become changed then, for the lapse of sixty years had completely altered the very ap-

pearance of the island. Instead of being a paradise or an enchanted garden, a place of wonders formed by the Deity for the rest and renovation of his creatures, Tinian was a wild island, uncultivated, and overrun with brambles, with but little and bad water, in an insufferably hot climate, full of flies, scorpions, ants, mosquitoes, and centipedes. Lord Byron considered Tinian as the most unhealthy place of all he had visited.

Wallis, another English navigator, who visited Tinian in 1767, gave a description of the island which, if possible, was still worse. But still he admitted that the cattle, pigs, fowls, potatoes, limes, oranges, rima, and other things mentioned by Lord Anson might be readily obtained; but, he added, that the water was brackish and full of worms, the climate very bad, and the whole island overrun with brambles.

Captain Gilbert, who touched at the island in 1788, in the *Charlotte*, reported the same of it as Wallis had done. A year afterwards, an English vessel, the brig *Mercury*, commanded by Lieutenant Mortimer, gave a little better account of it. He could obtain refreshments, but he said that the cattle were wild, and that it was necessary to hunt them. A well, which was near the anchorage, that had been much extolled by Lord Anson and his people, depreciated by Lord Byron as brackish and full of worms, and was dry when Captain Gilbert was there in 1788, was reported by Mortimer as abounding in excellent water.

All this might have arisen from the temper and disposition of the several navigators who had successively arrived at Tinian. The crew of the *Centurion* had good reason for considering the island as a delightful place after a long and tempestuous voyage remarkable for mishaps. Those who came afterwards, Byron, Wallis, Gilbert, who were none of them in that condition, would see it under a different aspect. The season in which they saw it would necessarily have much influence on its appearance: a well that would be dry in August might be well filled in December; a sky which is clouded at one season may be very clear in another. And as to the objection made by one of the English navigators of the cattle running wild, and it being necessary to hunt the animals, one might conclude that the island was uninhabited, things were not to be found cooked and ready for the table.

Tinian, deserted when Lord Anson saw it, and which still continues to be all but deserted in modern times, supports a tolerably large population and to a certain extent civilized. Some monuments are seen there which are not found anywhere else in these islands, nor in any other parts of the world. At a short distance from the landing place of Sunharon, there are twelve quadrangular columns, ranged in two lines opposite to each other, of a pyramidal form, the bases of which are slightly varied from each other. They are 15 feet high, and measure $6\frac{1}{2}$ feet on the widest side of the base, and $4\frac{1}{2}$ at the summit. Each of these carries a solid hemisphere of 7 feet diameter, with its plain surface upwards. These pyramids are formed with a composition of chalk and sand, so hard that at first it might be mistaken for stone.

Each column is formed of a single piece, and each hemisphere is formed of several parts of the same kind of composition cemented together with it.

These twelve columns are in two lines, six on each side, regularly placed, and forming a kind of street: five of them have fallen down, but the other seven are standing, and their solid construction is remarkable, for none of those that are fallen are broken, and only one or two have lost their hemispherical tops, probably when they fell. M. Freycinet supposes that these singular constructions are the remains of ancient buildings, and that the columns supported the roofs of houses occupied by the principal persons of the time. But I think he is wrong. The natives of the archipelago call these ruins the "houses of the ancients," and not only dwelling houses, but where they were buried. The natives have a tradition that the daughter of Taga, who was a chief of Tinian, was buried there; and that he lived long before the islands were discovered; this same chief being interred in rice. The present governor of the Marianas, Don Felipe de la Corte, acquainted with this tradition, explored the summits of the columns, with the view of examining them as to their being places of burial. The whole of the hemispheres appeared solid excepting one, which had a cavity about five feet long and two wide, like a coffin, full of earth, in which a small bush had grown. Here he found a jaw bone and two finger joints, which appeared to have belonged to an adult, as much from the size as from two teeth which the jawbone contained.

These antiquities of Tinian, although the most remarkable, are not the only ones to be found in the Marianas. In Rota and Guam there are also others much of the same kind as well as in Saypan, and even in other islands, although not so high or so remarkable for they are not of stone like those of Sunharon in Tinian. Although many are of stone, they are not so high, none of them being higher than four to five feet. About Agana they are all six feet, at a point called Asan. Beneath some of them human skeletons have been found, not lying extended as usual, but sitting in a crouching position, which is the mode adopted in Peru, and which the people of Japan still preserve.

There is no doubt that the antiquities of the Marianas consist of the sepulchral remains of a race long before the discovery of the islands by the Spaniards, and before the race by which they were occupied when Magellan found them.

The natives look on all these relics with a superstitious fear, and will not even touch them. The person who opened the hemisphere for Senor Corte, soon after lost his arm from an accident. There was no one of the natives who did not consider that loss to have been occasioned by the exhumation of the bones, by some mysterious connection.

The anchorage of Sunharon, the only one which the island affords, is the very worst than can be imagined. It is an open roadstead, off the S.W. part of the island—in fact, very near its South point. Speaking correctly, it is nothing more than a point of the coast, where bottom is to be found in the season of the N.W. monsoon, and where

vessels may get some shelter by dropping their anchors. The bottom is of coral, particularly pointed, in the midst of which some patches of sand are found. From October to June, which is the season of the N.W. winds, well established, they may lie at this anchorage; but in the other four months, from June to the middle of October, in which the opposite winds prevail, it is scarcely possible to lie there from want of shelter.

The shore opposite this anchorage is surrounded with reefs awash with the surface, between which there is a very good channel for boats.

Lord Anson, who anchored off Sunharon at the end of August, found very strong tides, the flood setting to the S.E. between Tinian and Agrigan. The *Centurion* anchored in 22 fathoms a mile and a half from the shore, and was frequently in danger of dragging her anchor from the effects of the current and the sea, which ran so high that on one occasion she was near being swamped, although a ship of 60 guns. Sometimes at the change of the moon she experienced furious gales, in which the wind would draw round from all quarters of the horizon.

Sunharon is the only place where vessels may anchor and have communication with Tinian. The rest of its shore is a vertical rock, and offers no anchorage whatever.

The *Narvaez* remained but five hours at Sunharon. I anchored tolerably close to the reefs three-fourths of a mile from the town (in 15 fathoms sand and stones), with the finest possible weather and very little sea, having a good pilot on board, who selected with the greatest care the best anchorage for us. Notwithstanding this and the short time we were there, the anchor came up with the stock broken, which well bespeaks the nature of the ground.

The well, which was so much approved of by Lord Anson and so much disapproved of by the navigators who followed him, is at a short distance from the landing-place, and is of little consequence, as it is neither worthy of praise nor condemnation. It is like any other well, not deep, with a very wide opening, and is descended by stone steps. In my opinion, all that it is remarkable for is its great age. It is called the Well of the Ancients, and was probably sunk by the same people whose burial-places are met with in all parts of the island, and who no doubt occupied the island long anterior to its discovery.

The town of Sunharon is composed of about half-a-dozen houses, containing fifteen persons, who form the whole population at present of the island. These persons come from Agaña, and are changed every two years. They are employed in killing black cattle (of which there is an extraordinary abundance in Tinian), and drying the flesh in the sun (forming what is called *Tajea* or *Tasaje*), sent to Agaña for sale for the support of the leper hospital. The establishment belongs to the governor, and is one of the least productions of the archipelago. This hospital of incurable lepers is on the Eastern side of the island, and at the time of my being there contained three wretched mortals. Fortunately the native Indians have no repugnance to this disorder, and they are attended by the same persons who are

employed in killing the cattle, under a principal person, who, for distinction sake, is called the magistrate.

The island of Tinian is very low, having no kind of elevation. However, the presence of the pumice stone, black sand, and scorix, which abound in the island, are certain indications of its volcanic origin. The whole Western shore is precipitous, except the part at which Sunharon is situated. The whole island may be passed close to, especially Point Georguan, which I nearly touched in my vessel; but it would be wise to give it a berth of half a mile in passing, since the details of the coast are not entirely known. A short reef extends from its N W. point. The Eastern shore is even more precipitous than the other, and more exposed to the sea than the Western. Off Point Lalo, on the Eastern side, a reef is reported, but extending only a short distance out; less, indeed, than shown by the chart. For my part, I have never seen it.

Tinian is very well laid down in the chart, and the plan of it, as well as Sunharon Roads, is very good. But more information than we have is required of its Northern side, towards the strait which separates it from Saypan.

(To be continued.)

A TURRET NAVY FOR THE FUTURE.—*An Appeal by Rear-Admiral Halsted to the Parliament of 1866.*

Change always was, and always will be, the order of the day somewhere. If by change be meant improvement, it must be welcome. But what have we here? Something surely more than change—an entire revolution proposed in the royal navy of Great Britain. At first this seems appalling: to suppose that every man-of-war is a turret-ship seems absurd, when we remember the formidable broadside presented by our line-of-battle ships of the Nelson school. But, alas! change has already been at work. Those formidable ships and their heavy broadsides are things of the past already, and here is a proposal for a turret line-of-battle ship that shall even deliver a heavier broadside than the largest of our iron-clads, designated by Admiral Halsted as "box ships." In fact, a first-rate turret-ship against any iron-clad first-rate that can be produced, and one backed by such men as Napier, Watts, and Oliver Lang as "the right thing for a first-rate man-of-war," is a proposal not to be slighted; for there can be little doubt that foreign governments which are now so desirous of showing an effective navy will at once adopt the principle of turret-ships, and from one size to another progress to a nine or a seven-turreted first-rate, like that described by Capt. Halsted. So that such a proposal, startling as it really is, comes to us in a form that entitles it to inquiry.

In reference to "*Dimensions*," Capt. Halsted says: "So far back as June 1860, before his Admiralty connection, Capt. Coles lectured to his brethren on a turret-deck plan similar to that here shown, with even nine instead of seven turrets; and then publicly stated his system to be capable of producing ships as large, as fast, and as sea-worthy as the *Warrior*, but full-armoured instead of semi-armoured, and with far more destructive and defensive powers. In full recognition of this fact, and to aid—not to rival—the inventor, the dimensions of the ship here shown have been adopted, with suitable modification, from those of our largest iron-clads built or building. To be furnished with engines of highest steam speed and masts for fullest proportions of sail-power; rudder with a surface to command with rapidity 45° across the line of keel at full speed.

"*Armour-backing, &c.*—Ship full-armoured fore and aft from 7 feet under water, with all other provisions for shot resistance against heaviest guns, based on the results first obtained by the Whitworth and Armstrong Committee, on the 26th of April last, in 'Oblique Fire.'

"*Armament.*—Seven turrets or cupolas with two guns each, so arranged that—1. The fire of four guns can be delivered in line of keel ahead and astern: 2. The central turrets, and very largely the deck itself, are protected from all raking fire: 3. The deck can be swept fore and aft to prevent boarding.

"*Guns.*—Mr. Whitworth's 15-ton 9-inch rifle: the most powerful, enduring, and perfect piece of service ordnance yet produced, whether as regards the material, manufacture, and proportions of the gun, or the range, accuracy, penetration, and simplicity of its projectiles. Charge, 45lbs.; weight of projectile, 325lbs.; bursting charge of shell, 19lbs."

We moreover read that "the weight from both guns of each cupola is 650lbs. That of each of 14-gun broadside, whether end on or abeam, is 4,550lbs., or rather more than two tons. If the largest 120-gun three-decker ever built had been armed throughout with 56-pounders, her broadside weight of metal would have been 3,360lbs., or 26 per cent. less than the turret first-rate."

We must content ourselves with stating these very formidable particulars, which, with much more information, are stated in the *brochure* before us, as being of serious importance for our consideration. Such ships, there can be no doubt, would sweep the seas. The powers of the turret system have not yet been brought forward; and if we are not very much mistaken, it behoves us to look to them if we are for preserving that *status* on the ocean which we have hitherto been accustomed to consider our own; for assuredly there will be plenty of work to do should we find one of these "*turret first-rates*" dropping her anchor at Spithead some of these days, and we without one to place alongside of her. After such ships let no one boast of iron-clad broadsides!

PROMOTION IN THE NAVY.

The following copy of a scheme signed by Lord C. Paget, proposed for increasing the flow of promotion amongst certain classes of officers of the royal navy, was published on the 12th of March in the form of a parliamentary return:—

“1. Compulsory retirement to be extended to all the executive lists.

“2. Admirals to be retired on attaining seventy years of age, or when physically unfit for service.

“3. Vice-admirals to be retired at sixty-eight, or when physically unfit for service.

“4. Rear-admirals to be retired at sixty-five, or when physically unfit for service.

“5. Flag-officers at present on the active list, who may be retired under these regulations, will retain all the privileges of rising in rank and pay to which they are now entitled; but no flag-officer, who has not hoisted his flag, will be considered eligible for the appointments of vice and rear-admirals of the United Kingdom, or for promotion to the rank of admiral of the fleet.

“6. The active flag list to be reduced to 85:—Admirals of the fleet and admirals, 21 (but not to be more than three admirals of the fleet at one time); vice-admirals, 22; rear-admirals, 42; total, 85. This reduction to be made gradually, by only filling up two out of every three vacancies caused by the removal of flag-officers who accept Greenwich pensions, and by retirements from age, whether optional or compulsory. Vacancies from all other causes are to be filled up as they occur. Vacancies on the list of officers on reserved half-pay in receipt of service pensions, and the list of flag-officers of Greenwich Hospital, will not be filled up.

“7. Flag-officers, at present on the active list, who have hoisted their flags, or been employed at the Admiralty, are to be allowed to retain their places on the active list if they should prefer it; but they may be placed on the retired list at their own request, with the consent of the Admiralty. Officers coming on to the flag list after this date will be subject to compulsory retirement at the ages specified above, whether they have served or not.

“8. Captains to be retired at sixty, or when physically unfit for service, on the terms of the order in council of the 9th of July, 1864. Those at present on the active list, who, before attaining the age of sixty, shall have served the necessary time to qualify them for promotion to the active flag list, are to be allowed to retain their places on the active list, if they should prefer it; but no captain will be eligible for promotion to the active flag list after sixty years of age, or if physically unfit for service.

“9. Officers promoted to the rank of captain after this date will be subject to compulsory retirement on attaining sixty years of age, whether they have served or not.

"10. Captains of sixty years of age, who have served the necessary time to qualify them for promotion to the active flag list, and who remain on the captains' list until promoted to rear-admiral, will be placed on the retired list, but will be allowed to rise by seniority to the rank and pay of vice-admiral and admiral respectively. Captains who have served their time, but who retire voluntarily before reaching the top of the list, will not be entitled to rise to higher pay, as flag-officers, than 25s. a day, in accordance with the order in council of 9th July, 1864.

"11. Captains who have not served their time for active flag rank, and who have been unemployed for ten years, to be retired on the terms of the order in council of 9th July 1864.

"12. Captains to be allowed to retire on attaining fifty years of age, with the consent of the Admiralty, on the terms of the order in council of 9th July, 1864.

"13. The captains' list to be reduced gradually to 250, by filling up only two out of every three vacancies caused by age-retirements from that list, whether optional or compulsory. Vacancies from all other causes are to be filled up as they occur.

"14. Commanders to be retired at fifty-five, or when physically unfit for service, and to be allowed to retire at fifty, with the consent of the Admiralty, on the terms of the order in council of 9th July, 1864.

"15. Lieutenants to be retired at fifty-five, or when physically unfit for service, and to be allowed to retire at forty-five, with the consent of the Admiralty, on the terms of the order in council of 9th July, 1864.

"16. Time served by naval officers in civil employments connected with the navy, which does not entitle them to civil superannuation, is to be allowed to reckon towards increase of half or retired pay in the proportion of one year for every two served in such capacity.

(Signed)

"C. PAGET.

"Admiralty, March 9th, 1866."

VOLCANIC ERUPTION AT SANTORINO.

Her Majesty's ship *Surprise*, Commander Tryon, which had been despatched to Santorino to render assistance to the inhabitants, returned to Malta on Friday, the 24th of February. We have been kindly favoured with the following interesting particulars of the recent volcanic eruption. As soon as Santorino was sighted by the *Surprise*, a dense white mass of vapour was observed rising from the sea, which appeared to be boiling, from some unknown cause, and when the island was approached a strange sight was seen—the sea was evidently boiling, and clouds of the whitest steam rushed out, soaring heavenwards

like an enormous avalanche, and looking like snow. Something black was then seen rising slowly from the sea, which afterwards turned out to be no less than an island springing from the deep. It appears that there were no earthquakes, but convulsions of nature caused by volcanic islands having been thrown up from the sea, and as violent eruptions had taken place the inhabitants were greatly alarmed, but at the time the *Surprise* arrived no immediate danger was apprehended. The position of the vessel was a very good one to watch the eruptions from the volcano on the burning island that had lately risen from the deep.

The sea for several miles looked very strange, the sulphur giving it a yellowish appearance, and round the new volcanic island the sea was boiling at some 100 yards distance from the shore. The steam rose with great grandeur, the whole island emitting smoke and sulphureous vapours, coloured by flames inside the volcano, in some places being cracked, and through the fissures an immense mass of red-hot lava was visible. The volcano was in a constant state of life, and an eruption took place on the morning of the arrival of the *Surprise*. A black mass of vapour was vomited forth from the volcano, pouring upwards; but the fury of the eruption was soon expended, and it suddenly ceased.

On the following day her Majesty's ships *Phæbe* and *Tyrian* arrived to the succour of the island. A Greek man of war had come in, and the next day a Russian frigate was seen approaching, but she did not seem to like appearances, and kept at a distance, watching the phenomenon for some hours before going closer in. The second night after the arrival of the *Surprise* another eruption took place; the roar was very fierce, smoke poured forth from the volcano with terrific fury, and large blocks of rock and stone were hurled into the air, the whole presenting a most imposing sight. During the night it was said that a new island had been thrown up; the one pointed out was about 300 yards long and was a black smoking mass. Close to the anchorage of the *Surprise* there had been a place called Mineral Creek, which was then no more; a large hill had risen out of it. It made its appearance before the arrival of that vessel, but it rose higher and higher during her presence there, while the old island was sinking gradually as if about to return to the depths of the sea from which it had risen.

On this sinking island were several houses, many of which were gone altogether, and others were being washed by the sea; of one house there was one little more than the roof and chimney-pot above the water, while a building sank and rose again. It was remarkable that rocks were constantly appearing above the sea and then disappearing; and hence the position taken up by the *Surprise* was not very pleasant. On the second night a slight concussion was felt two or three times on board; and, as islands had been springing up in the immediate neighbourhood, it appeared likely that one could come up under the ship's bottom. At the time the wind and sea were heavy, and the vessel drifted rapidly in the direction of the volcano, round

which the sea was boiling, and a world of steam, vapour, and smoke arising. The *Surprise* immediately got up steam. A large number of houses were buried in the lava and by the new hill that rose from Mineral Creek; but fortunately no lives were lost, as timely warning had been given and the inhabitants had escaped. The damage done to property was not so great as might have been expected.

Nautical Notices.

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

PARTICULARS OF LIGHTS RECENTLY ESTABLISHED.

(Continued from page 159.)

Name.	Place.	Position.	F. or R.	Ht. in Feet.	Dist seen in Mls.	(Remarks, &c. Bearings Magnetic.)
7. River Saigon	Cochin China	.....	F.	32	10	Est. 26th November, 1865. See page 165.
Mintock	Banks Strait	.....	F.	..	..	Est. 1 See page 166
8. Rock off Palm Island	Australia E. coast	18° 43.5' S. 146° 43.5' E.	..	..	..	(a.)
9. Double Island	Burma coast	15° 52.5' N., 97° 36.5' E.	F.	..	19	Est. 4th December, 1865. (b.)
10. St. Esprit Reef	East of Martinique North of Barbados	14° 44' N., 59° 69' W.	..	..	..
11. Bank One Fathom	Straits of Malacca	.....	..	..	..	(c.)
12. Port de France	New Caledonia	23° 28.7' S., 166° 27.6' E.	F.	164	20	Est. 1 On Amedee Islet. (d.)
13. Oporto	Portugal	.....	..	..	..	(e.)

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

(a.) 8.—Acting-Commander D. Young, of H.M.S. *Salamander*, has recently discovered a dangerous rock off the N.E. point of Great Palm Island, on the East coast of Australia, named by him the Hayman Rock.

It is in lat. 18° 43' 30" S., long. 146° 43' 30" E., rather more than 2 miles off the N.E. point of Great Palm Island, and nearly in the track of vessels. Its N.E. point is awash at low water, and from it the centre of the White Rock—off the S.E. point of the Great Palm Island—bears S.E. $\frac{1}{4}$ S., distant 3 miles; the S.E. point of Great Palm Island S. $\frac{1}{4}$ E., 2 $\frac{1}{4}$ miles; and the N.E. point of Great Palm Island W. $\frac{1}{4}$ N., 2 $\frac{1}{4}$ miles.

From its N.E. part the rock extends in a S.W. direction at least 100 yards, with 3 and 4 $\frac{1}{2}$ fathoms water on it shelving to 9 fathoms. Between it and Great Palm Island there are 10 and 13 fathoms; and eastward of it 15 fathoms, mud. No landing could be effected on account of the sea. The approximate rise of tide at springs may be 8 or 10 feet.

When bound to the northward and closing the Palm Islands, bring the centre of the northernmost island to bear N.W.b.W. $\frac{1}{4}$ W., and steer for it

until the N.E. point of Great Palm Island bears W.b.S.; then keep a little westward to avoid the Zebra and other doubtful shoals on the North.

All bearings are magnetic. Variation $8^{\circ} 55'$ East in 1866.

(b.) 9.—The light is seen when bearing from about N. $\frac{1}{2}$ W. round by East to S.S.E.; the former bearing passes $1\frac{1}{4}$ miles westward of Kalegouk or Callagouk Island, and the latter $1\frac{1}{4}$ miles westward of the Patch buoy off Amherst.

A strip of light shows from the Patch buoy eastward as far as Amherst point.

Amherst point bears from the light N. $\frac{1}{2}$ W.; the Patch buoy N.b.W. $\frac{1}{2}$ W., and the West point of Kalegouk Island S.b.E.

Vessels making the light should keep it between the bearings of S.E. and N.E., paying particular attention to the tides, as at springs they run about 5 knots an hour, *parallel with coast*. Vessels standing too close to the land will lose sight of the light, but so long as the light is in sight there will be no danger until 10 miles northward of it, when approaching the Goodwin sands, where the tides set very strong. The anchoring ground in the vicinity of Double island is good, but, on account of the strength of the tides, vessels should avoid as much as possible the risk of anchoring in such deep water.

All bearings are magnetic. Variation $2^{\circ} 15'$ East in 1866.

(c.) 11.—The government of Singapore has given notice, that four buoys are moored near the *one Fathom bank* in the Strait of Malacca; two buoys are near its eastern end in 6 fathoms, L.W.; one off its southern end in 6 fathoms; and the other at its western edge.

Parcela hill bearing East leads to the southward and E.S.E. to the northward of the bank. Pulo Anza bearing N.E. leads to the westward, and N.E.b.N. to the eastward of it. Vessels bound up or down the strait should pass southward and westward of the buoys and lightvessel, so as to clear the 2 fathom bank, off which the southern buoy is moored.

All bearings are magnetic. Variation $1^{\circ} 35'$ East in 1865.

It would have been satisfactory to have given the colour of the buoys.—
ED. N. M.

(d.) 12.—Amédée islet is sandy, covered with brushwood, within the reef which surrounds New Caledonia; the lighthouse on it serves as a mark for the entrance to the Bulari passages southward of Port de France. The north passage is about 4 cables in breadth, and 2 miles S.W. $\frac{1}{2}$ S. from the lighthouse. To go in by it, steer with the lighthouse N.E. $\frac{1}{2}$ N., giving a berth to the point of the great reef; leave this to port; then steer northward, passing about a cable, east or west, of the reef awash at a mile north of the entrance, until the middle of the woody islet of Maître bears West. Then steer to the N.W. to pass between it and the small woody islet of Mando (île aux Canards), and when mid-channel between these two islets, steer for the north extremity of Brun islet, leaving it on the starboard hand in entering Port de France.

The light is seen all round the horizon, but as the general trend of the barrier reefs fronting the S.W. coast of New Caledonia assumes a N.W.b.W. and S.E.b.E. direction, a vessel should be careful to approach the light between the bearings of N.b.E. and E.N.E. Making the light in fine weather to the N.E., a vessel will be 18 miles from that part of the barrier near the lighthouse, and about 16 miles from the nearest part, and will lessen the distance as the light is brought to bear northward or eastward of the above bearing.

All bearings are magnetic. Variation $10^{\circ} 45'$ East in 1866.

(e.) 13.—The Portuguese government has given notice that the lighthouse of Nossa Senhora de Luz, at the entrance to the river Douro, is about to be replaced by another. In the meantime, from the 11th day of March, 1866, until further notice, a provisional white light will be exhibited from the same tower, visible in clear weather from a distance of 8 miles.

ROCKS OFF THE S.E. POINT OF TANEGA SIMA.

At 10 a.m., 5th May 1865, made Tanega sima, the Southern part being high and table land. Some rocks were observed off its S.E. point, and a shoal about 2 miles S.S.E. from them; the whole nearly 7 miles from the S.E. point of the island. When the South point of Tanega sima bore North about 8 miles, and the South point of Yakuno sima W.b.N., struck soundings in 8 fathoms, rocky bottom; the following cast no bottom in 13 fathoms.

To clear these dangers, the South point of Yakuno should not be brought westward of W.b.N. until the high rock off the S.E. point of Tanega bears N. $\frac{1}{2}$ W. This rock, which is about 50 or 60 feet high, and a conspicuous object when passing through Colnett Strait, appeared to be 3 to 3 $\frac{1}{2}$ miles off the point.

Colnett Strait seems to be the best route for a steamer of small power to take when making for the coast of China with strong Westerly and N.W. winds. The current, however, must be carefully attended to, especially at night or in thick weather, for it was found to run with great velocity, 4 to 5 knots, with West and W.S.W. winds.

The bearings are magnetic. Variation 2° 30' W. in 1866.

Mr. A. F. Bozer, commanding H.M.S. "Hesper."
Admiralty, London, 9th March, 1866.

THE ORMSBEE BANK. — Capt. Winchester, of the *Coral Nymph*, from Singapore, recommends ships passing this bank (on which he considers there is as little as 5 fathoms), to or from the Gillolo passage, should not go North of lat. 35° N. until past the meridian of 130° E. if bound eastward, or, if possible, keep Syang in sight from the deck, as it will take a ship clear of the shoal patches.—*Shipping Gazette*, Feb. 27th.

THE JERSEY ISLAND PILOT has just been published by order of the Lords Commissioners of the Admiralty, which work, with those for Guernsey and Alderney Islands, published in 1863 and 1864, place the seaman in possession of complete information for the difficult navigation of those islands. These works are the result of the energetic labours of Staff-Commander John Richards, R.N., and do great credit to that officer, who may be considered to be the first who has ever produced a complete work, which not only describes with his charts (published on a liberal scale) the very numerous dangers of that difficult archipelago, but also the various peculiarities of the extraordinary and dangerous tides by which they are attended.

THE LOSS OF THE "LONDON."

Sir,—In the debate of Monday (March 19), in the House of Commons, relative to the loss of the *London*, Mr. Samuda's speech conveys

the impression that Messrs. Wigram were wholly uninsured. No doubt that firm run a large risk on their ships, but they do insure, and in the case of the *London* had done so to a large amount. It was well known here that the Marine Insurance and other companies had heavy losses on her.—I am, &c.

Lloyd's, March 21st.

AN UNDERWRITER.

Mr. Gilbert Highton has just received the identical message sent by Mr. Denis, who was drowned in the *London*, to his brother, and finds that, owing, as he supposes, to the mistakes of the French copyist, its wording differs somewhat from the version hitherto given to the public. Though dated only two hours before the vessel went down, and when all hope was lost, it is nevertheless written in firm, clear characters, not distinguishable from Mr. Denis's ordinary handwriting, and he even displays a little peculiarity he had of spelling his name with one "n." "H. J. Denis to Jno. Dennis, Esq., Great Shelford, nr Cambridge.—Thursday, 10th January. Farewell, father, brothers, sisters, and my Edith," (his little daughter, now entirely an orphan.) "Ship *London*, Bay of Biscay, Thursday, 12 o'clock noon. Reason—Ship overweighted with cargo, and too slight a house over engine-room: all washed away from deck. Bad poop-windows. Water broken in. God bless my little orphan— . . . Storm; but not too (violent?) for a well-ordered ship."

THE BRITISH IRON-CLAD FLEET.

A return has been issued showing the speed, outlay, &c., of the iron-clad ships belonging to the royal navy. The following is the substance of the return, in a tabulated form:—

Name.	Speed in knots per hour.	Expenses of building and fitting hulls.	Cost of alterations, repairs, &c.
<i>Warrior</i>	14-356 . . .	£286,285 . . .	£22,517 . . .
<i>Black Prince</i>	13 604 . . .	288,911 . . .	11,107 . . .
<i>Defence</i>	11-618 . . .	206,783 . . .	11,061 . . .
<i>Resistance</i>	11-834 . . .	213,889 . . .	11,426 . . .
<i>Hector</i>	12-36 . . .	242,395 . . .	2,215 . . .
<i>Valiant</i>	12-633 . . .	263,258 . . .	— . . .
<i>Achilles</i>	14-322 . . .	388,212 . . .	1,549 . . .
<i>Minotaur</i>	14-779 . . .	345,873 . . .	— . . .
<i>Agincourt</i>	15-433 . . .	346,455 . . .	— . . .
<i>Northumberland</i>	— . . .	250,165 . . .	— . . .
<i>Prince Albert</i> (turret)	— . . .	144,409 . . .	— . . .
<i>Bellerophon</i>	— . . .	245,509 . . .	— . . .
<i>Penelope</i>	— . . .	— . . .	— . . .
<i>Viper</i>	— . . .	31,790 . . .	— . . .
<i>Vizen</i>	— . . .	34,485 . . .	— . . .
<i>Water Witch</i>	— . . .	11,667 . . .	— . . .
<i>Hercules</i>	— . . .	— . . .	— . . .
<i>Monarch</i>	— . . .	— . . .	— . . .

The blanks in the foregoing table are accounted for by the fact of the vessels not yet being completed. The *Warrior*, the *Black Prince*, the *Defence*, the *Resistance*, the *Hector*, and the *Valiant*, were designed and put in hand by the late controller, Sir B. Walker, and Mr. Watts, the chief constructor at the time. The *Achilles*, the *Minotaur*, the *Agincourt*, the *Northumberland*, and the turret-ship *Prince Albert*, were designed and put in hand by the present controller, Admiral Robinson, and Mr. Watts. The last seven vessels in the foregoing table were designed and put in hand by the present controller and Mr. Reed, the present chief constructor. The *Warrior*, the *Black Prince*, the *Achilles*, the *Defence*, the *Resistance*, the *Hector*, and the *Prince Albert* are now in commission. The *Valiant*, the *Minotaur*, the *Agincourt*, the *Viper*, and the *Vixen* have been launched; and the *Water Witch*, the *Northumberland*, the *Penelope*, the *Hercules*, and the *Monarch* are on the stocks or building.

The large sum expended on the *Warrior* since she was built includes part of an extensive refit, commenced since she was paid off; forty-four months have elapsed since her building was completed, and only thirty-three since the finishing of the *Black Prince*.

THE UNITED STATES SQUADRON IN THE PACIFIC. — As a great many changes have recently been made in the vessels composing the United States Pacific squadron, the following table, compiled from the latest data, of the vessels now in the Pacific and those on the way out, will be of interest to many of our readers:—

Lancaster, 30 guns, screw; cruising.
Jamestown, 22 guns, sloop; San Francisco.
Wateree, 12 guns, paddle; cruising.
Saginaw, 4 guns, paddle; Acapulco.
Muscoota, 10 guns, paddle; en route.
Mohingo, 10 guns, paddle; en route.
Camanche, 2 guns, iron-clad; San Francisco.
Saranac, 9 guns, paddle; cruising.
Nyack, 10 guns, screw; en route.
Suwanee, 10 guns, paddle; Esquimalt, V. I.
St. Mary's, 16 guns, sloop; cruising.
Cyane, 16 guns, sloop; Panama.
Farallones, 6 guns, store-ship; Straits of Magellan.
John Hancock, 1 gun, screw; Navy Yard, California.
Powhattan, 15 guns, paddle; en route.
Monadnock, 4 guns, iron-clad; en route.
Vanderbilt, 12 guns, paddle; en route.
Tuscarora, 10 guns, screw; en route.

The three last-named vessels will be accompanied out by Commodore John Rogers, who will, we understand, join the squadron, taking up his head-quarters at Callao. The *Vanderbilt* will be the commodore's ship when she arrives. The *Powhattan*, on her arrival out, will relieve the *Lancaster* as flag-ship of the squadron: at last advices she was fitting out at Boston, but she has most likely sailed by this time.

COURT-MARTIAL ON MR. GORDON.—The following was Brigadier-General Nelson's note on the finding of the court-martial in Mr. Gordon's case:—"Approved and confirmed. Moreover, I fully concur in the sentence awarded; such being fully borne out by the evidence. The prisoner to be hung on Monday next, the 23rd of October, 1865; to-morrow, the 22nd, being Sunday, and the state of this part of the country not rendering it necessary to inflict the punishment on the Sabbath-day.—A. A. NELSON, Brigadier-General, Commanding Field Forces.—Morant Bay, Oct. 21, 1865, 8 p.m." Gordon was tried on Saturday, the 21st of October. The court closed their proceedings the same evening. The evidence was early the next day forwarded to the general, together with the finding of the court, which had been approved and confirmed by Brigadier-General Nelson, the officer in command of the district. On Sunday, about one o'clock, the same was received by the general at head-quarters, who read it to the members of the executive committee. Immediately afterwards it was forwarded by express to his excellency the governor in Spanish Town.

EXTRAORDINARY VOYAGE.—Every yachtsman (says the *Dublin Express*) will share in the pride with which a correspondent relates a brilliant, and, we believe, unexampled exploit which has been performed by a small yacht of only 25 tons, which is not a stranger to the waters of Dublin Bay. The gallant little craft set out from Liverpool for the antipodes, and arrived safely in Sydney after a splendid run, performing the entire distance, 16,000 miles, in 130 days. Such an achievement affords grounds for reasonable exultation, not more as a proof of the nautical skill of our amateurs than of their adventurous spirit, which quite casts in the shade the most daring feats of Alpine climbers.

New Books.

CAST AWAY ON THE AUCKLAND ISLES, &c. *From the Private Journal of Captain Thomas Musgrave.* London: Lockwood & Co., Stationers' Hall Court.

Such is the title of a little pocket volume, carefully and neatly got up, and edited by a gentleman, Mr. John Shillinglaw, not unknown to the pages of our work, and who has produced a most interesting and, to a certain extent, useful little book. We should characterise it as one of adventure, suffering, hairbreadth escapes, and amusing as well as instructive observation—one that has certainly rendered those miserable, solitary spots on the stormy ocean to which they belong as less unknown than they were, along with the periods when seals are available to the shipwrecked mariner as food, and the curious migratory habits of those animals. Had Capt. Musgrave been a *solitaire* in his troubles, we should have compared him with Robinson Crusoe, to whose strange adventures Capt. Musgrave's experience had a remarkable affinity. It will prove a fund of amusement to any juvenile *aspirant* for the sea, who will pore over it with delight.

CHARTS AND BOOKS PUBLISHED BY THE HYDROGRAPHIC OFFICE, ADMIRALTY, in *March*, 1866.—Sold by the Agent, J. D. Potter, 31, Poultry, and 11, King Street, Tower Hill, London.

- 44.—Ireland, East Coast, Drogheda to Carlingford, R. Hoskyn, Master, R.N., 1858, (2s. 6d.)
 189.—Sicily, West Coast, Trapani to Marsala, Lieutenant Wilkinson, R.N., 1864, (2s.)
 251.—Africa, North Coast, Cape Carbon to Fratelli Rocks, Lieutenant M. A. Bérard, F.I.N., 1836, (1s. 6d.)
 687.—Newfoundland, West Coast, Little Port and York Harbour, French survey, 1851–63, (2s.)
 2,545.—America, West Coast, Monterey Harbour, &c., Anchorages, United States survey, 1857, (1s. 6d.)
 961 DÉ m = 1 0.—Basilan Channel, Captain Sir E. Belcher, R.N., C.B., 1847, (2s. 6d.)
 2,413.—East Indies, Rhio Strait, Dutch survey, 1863, (2s. 6d.)
 2,577.—Philippine Islands, St. Bernardino Strait, and parts adjacent, Spanish charts, 1863, (2s. 6d.)
 911.—Banda Sea, Cajeli, Saparvea, and Amboina Bay, Captain Sir E. Belcher, R.N., and Dutch surveys, 1840–47, (1s. 6d.)
 2,407.—Russian Tartary, Tumen-ula River, Gaidamak Harbour, Eastern Bosphorus and Novik Bay, Russian survey, (2s. 6d.)
 741.—Fiji Islands, Nairai and Mbatiki Islands, Captain Denham, R.N., F.R.S. 1856, (2s.)
 Jersey Island Pilot, 2nd edition, Staff-Commander Richards, R.N., 1866, (1s. 6d.)
 Hydrographic Office Notice, No. 1, Rocks off the S.E. Coast of Tanega Sima.

EDWARD DUNSTERVILLE, *Commander, R. N.*
Admiralty, Hydrographic Office, 21st March, 1866.

FRESH WATER FOR SHIPS.—Our readers are aware that some time last year a new pier was opened at Deal. It is constructed entirely of iron, and is 1,100 feet long, 25 feet wide, having a T shape; the head being 120 feet long and 50 feet wide, and affords every facility for communication with ships in the Downs. It appears that ships are now supplied with pure fresh water from this pier into the ships' casks, at any state of the tide, and at a very moderate cost.

TO CORRESPONDENTS.

We have received the letter from our old subscriber R. L. H.—not so useful a communication as those to which we were accustomed. Referring to the *Duncan Dunbar's* wreck, he will see our opinion of that wreck in our January number, pages 20 and 21, long before that of the Admiralty Hydrographer was given, and which seems to affront him sadly. Our remarks in the February number, to which he alludes, had reference to those of the *Hydrographer*, confirming what we had already said,—so that we, too, must endeavour to survive his disapprobation. As he alludes to our opinions on marine insurance, he will find a letter in this number, page 220, on the *London* which exactly confirms those opinions.

THE
NAUTICAL MAGAZINE

AND

Naval Chronicle.

MAY, 1866.

REMARKS ON MR. HOPKINS' LECTURE ON THE COMPASSES OF
IRON SHIPS.

According to the lecture of Evan Hopkins, C.E., F.G.S., &c., the long-sought problem of the Deviation of the Compass has been solved. What the most sanguine had almost despaired of seeing accomplished appears to be already realised. The announcement will be received with delight and thankfulness by all maritime nations; many a ship-master will acknowledge the boon when he recalls to mind the anxious nights of watchfulness he has spent with doubtful compasses on the foggy shores of North America, in the neighbourhood of the coral reefs of the vast Pacific, or the partially surveyed groups of the China Sea. Until the fact is, however, positively established, I shall take the liberty to examine some of the premises advanced, both theoretically and practically, as I plainly perceive difficulties which Mr. Hopkins appears wholly to have disregarded.

1.—I doubt the power of the strongest battery to permanently destroy the polarity of such a complicated mass of iron as that which composes an iron ship; and when it is proposed to screw two powerful magnets on the bow and stern, it is simply upholding the theory which the lecturer wishes to annihilate.

2.—The efficacy of elevated compasses has long been questioned by many; and there is a growing prejudice against their use on board steamships. Any one may remark this who visits one of our great maritime ports. Mr. Hopkins says that an elevation of 10 to 20 feet raises a compass beyond the disturbing influence of the iron hull. I can assure him that at 17 feet above the deck beams, in a steamer

without bulwarks, I have known a tripod compass 6° in error. Again: in a wet dock, I have remarked a compass card stealing slowly round under the influence of the attraction of a passing iron ship. If 20 feet is the extreme distance at which a mass of iron will attract the needle, why is so much care used in removing the ship to a considerable distance from any object which is built of iron? The man who would swing a ship for deviation when surrounded by such would be looked on with suspicion by competent judges.

I think it was the late Capt. Johnson who related an anecdote about a dockyard craft which, on her passage to Milford with water-tanks, found her compasses perfectly useless. The hold of this vessel must have been more than 20 feet from the binnacles.

Another grave objection to the use of elevated compasses is the increased wear of the pivots and caps; and when running in a heavy sea, their vibration becomes excessive, frequently swinging through an arc of several points.

3.—The lecturer must have been misinformed when he states that the steering compass is relied on to such a dangerous extent. In all ships of note the course is given from a standard, and referred to the steering by comparison. Doubtless, in coasting steamers, where men are constantly plying between the same ports, the steering compass may be frequently used to give the course, after those in charge have assured themselves by frequent runs of the exact bearing of their port.

Sluggishness is a defect in compensated and uncompensated compasses, depending on more causes than want of elevation. I have also frequently observed it in light weather on board of ships built of wood in the ordinary binnacles. Many of us have seen an old quartermaster attaching a twiggling line to the bowl. After many years of voyaging in all classes of ships, I can safely assert that I never saw the "watch" employed in "hammering the binnacle."

4.—The dumb card has long been in use, and for ships on distant voyages, when strictly attended to, is of occasional service; but on nearing land the course is so frequently altered, sometimes by hand, that it fails to be of service when most required. Mr. Hopkins attaches undue and exaggerated importance to the man at the wheel: that useful and necessary individual has really nothing whatever to do but to keep the ship on the course indicated, and if officers did not pay proper attention in ascertaining that the correct course was given to each "relief," mistakes would occur as easily with a card as large as the dial of St. Paul's as they do now with the ordinary one.

5 and 6 have long been acknowledged as highly advantageous.

I shall now make a few quotations from the lecture, and endeavour to answer some portions of it.

Page 182.—"Mariners are well aware of the difficulty in applying to the deviation either mechanical or tabular corrections; the most careful and experienced navigators place no reliance whatever on either of the methods now practised."

This remark casts a slur on the great astronomer who founded the science, by whose aid our ships have for a quarter of a century been

carrying English commerce over every sea, increasing the national wealth and maritime power in an enormous degree. By one or the other of the above-named means of correction (nearly always the former) our iron mail boats dash over the stormy Atlantic through fog and dangerous currents with all but the regularity of a mail train. If they are a few hours after time, men anxiously speculate on the cause of delay; a day or two sends the premium of insurance up. With these facts before us, no one can assert that, when properly applied, these corrections admit of no confidence being placed in them. The error lies more at the door of those who, although armed with full powers, allow ships to proceed to sea with inferior compasses, badly adjusted or incorrectly tabulated.

Page 182.—“There are two modes now practised for correcting the deviation, each of which is considered to have its advantages and disadvantages; but, excepting for ships making short voyages in the same parallel of latitude, both methods are regarded as mere temporary corrections; and, even when confined to the same latitude, they can only be depended upon for a very short time, owing to the rapid changes taking place in the polarity of iron vessels.”

After carefully watching the changes of magnetism which take place in iron ships, I have come to the conclusion that after a few voyages it never varies suddenly to a dangerous amount in an uncompensated compass; on the contrary, I now hold a register of deviations for several successive voyages of a steamship, which differ very little from each other when running down the same track.

The heeling error is the most dangerous, as it is the most difficult to guard against. With a varying force of wind, or much rolling motion, no reliance can be placed on a deviation table, even when the upright error is small. In a ship built with her head N.W., on the N. and N.E. points, with the compass 30 feet from the stern and elevated 10 feet above the poop beams, I found the alteration $1\frac{1}{2}^{\circ}$ to $1\frac{3}{4}^{\circ}$ for each degree of list on the starboard tack. No opportunity occurred of trying the same points on the port. On the S.E. points on the starboard tack the errors were equally large.

Page 183.—“If a compass be surrounded by fixed magnets, or even by ordinary iron, it becomes absolutely useless as a guide.”

This paragraph is rather ambiguous. If the lecturer means that a compass hedged in with magnets, or placed in the centre of an iron turret for experiment, becomes useless as a guide, I agree with him; but no man would attempt such a course in practice.

A little further down in the same page are charges of inconstancy of purpose against Messrs. Evans and Smith, of the Compass Department of the Navy. When these lines were penned, turret and plated ships were probably not in existence, for I have not read the article; its date is therefore unknown to me. Circumstances alter cases, and with new elements of difficulty to contend with, these gentlemen found what others had found before them,—viz., In some cases compensation is absolutely necessary; a compass ten or twelve points in error is quite useless for all purposes of navigation.

Page 184.—“Many of the errors of deviation, however, attributed solely to the hulls of ships may be referred to the defective manner in which the binnacles are placed on board iron ships,” &c.

The above remark is strictly correct, and the profound indifference displayed by the shipowner on this most important point is singular. I heard one gentleman say, “Oh! it must be fancy,” when a spot was pointed out as being the freest from deviation; and a second objected to the position marked out for the standard compass, because it would interfere with a seat he had contemplated putting up for passengers. Before the keel of an iron ship is laid down, the place of everything save the compass is marked on it,—the position of that important instrument is left to chance.

The experiments with magnets are interesting and well-known facts, but I cannot perceive how they tend to throw light on the important subject which forms the heading of the lecture. What navigation requires is the solving of the following problem,—viz., Given an iron ship with all her heterogeneous masses of hard and soft iron; find how its influence on the compass may be nullified. It would be presumptuous to say that this will never be solved; still no nearer approach has been made for a series of years, although so many great intellects have been devoted to it.

Mr. Archibald Smith has long since demonstrated the superiority of double needles over single, and of vertical over flat. But so ignorant are the great mass of compass-makers of these simple facts, that the majority still place the needles flat on the card. Much of this neglect is caused by the vicious system of contracting for compasses. The aim of the maker is naturally to furnish no more labour or material than will barely pass muster under the eyes of men who do not possess a sufficient knowledge of the subject. This deficiency in workmanship is made up, as Mr. Hopkins remarks, by a profusion of brass ornaments on the binnacles, which cover all defects.

Not long since, in a new ship, I found the needles (two in number) placed on their flats on the cards at a distance of 28°. During the first passage I found the compasses almost useless in heavy weather; on arriving in port I wrote to the maker, and asked him why he put the needles on their flats and at such an enormous arc from each other, as the arrangement must cause an extreme degree of *wabbling*. His reply stated that he had placed the needles in close proximity to prevent the *wabbling* I complained of, underlining the word with three dashes. This man was considered one of the best compass-makers in a mighty maritime port, and printed “scientific adjuster of compasses in iron ships and steamers” on his card.

In a future paper, on the Defects of our Merchant Navy, I intend to point out what I consider a few improvements on the subject. Many defects in the *personnel* are doubtless due to the unpopular government of the Board of Trade. They look on its officers with as much dislike and dread as the old smuggler did on the revenue officer. Their only mission appears to be to punish. Acts of gallantry or skill are passed over in silence.

MERCATOR.

THE SOLAR ECLIPSE OF APRIL LAST.

On the interesting subject of the eclipse of the sun in April last, a correspondent sends us his observations, for the purpose of determining the longitude of his station at the Chincha Islands.

While we applaud his motive, we confess to some disappointment that he will ever see by these means the realisation of his object. He gives us the times of the beginning and end of the eclipse by a chronometer, and to obtain its error on the time at the place on the day of observation he also sends us the observed times of a series of equal altitudes of the sun.

Now this would contribute no doubt an excellent means to attain his object,—there is ample data, and his equal altitudes are evidently observed with great care,—but, alas! they carry their failure on their face. Who ever heard of *equal* altitude being taken with the sea horizon?—an observation which depends on an instant of time to be subjected to the *changeable* nature of the opposite sea horizons of morning and afternoon. However, we append his letter and the observations he has sent; but we recommend him in future, if he really wishes to turn equal altitudes to account, to use an artificial horizon of mercury, or oil, or something that will be better than the fluctuating horizon of the sea, which it is well known for so delicate an observation is never to be trusted.

We annex to his letter a record of the eclipse as observed at *Concepcion*, which appears to have travelled through Rome to the pages of the *Athenæum*.

London, Dec. 12th, 1865.

Dear Sir,—Being aware of the value of determinations of beginning and end of solar eclipses, while at the Chincha Islands in April last, I made preparations for, and observed, those phases of the eclipse of April 25th.

As that eclipse was visible at the Cape of Good Hope, Rio Janeiro, Santiago, and Chili, similar observations made at either of those places, whose longitude is well determined, will enable us to see if the longitude of the Chincha Islands, and consequently many places on the West coast of South America, is well laid down. I discharged my ship in Hamburg, and sent her on a long voyage, and am now on my way home *via* Liverpool, therefore I have not time to call on you in person. I should be most happy to do so, knowing as I do the value of your magazine; but as I cannot, I enclose a copy of all the observations which the case requires for a computer to determine the longitude at *once* as nearly as the *Nautical Almanac* can be relied on, and when observation at any other place whose longitude is well known can be obtained, *then* the longitude of the Chincha Islands can be *certified* if already correct, or *rectified* if now erroneous.

Respectfully your obedient servant,

JOHN HAYDEN.

To the Editor of the *Nautical Magazine*.

Observations for determining the time of the beginning and end of the Solar Eclipse, April 25th, 1865. Equal altitudes of sun's lower limb were observed at the following times by chronometer.

A.M.			Altitudes.			P.M.		
h.	m.	s.	°	'	"	h.	m.	s.
11	54	51	12	6	30	9	43	40
11	56	38	12	32	0	9	41	49
11	58	16	12	54	30	9	40	12
12	0	8	13	18	40	9	38	29
12	1	55	13	44	40	9	36	36
12	3	41	14	9	50	9	34	46
<hr/>			<hr/>			<hr/>		
11	59	14	13	7	42	9	39	15.3
h.	m.	s.	°	'	"	h.	m.	s.
1	20	45	31	33	50	8	17	42
1	23	5	32	4	10	8	15	23
1	24	35	32	24	0	8	18	53
<hr/>			<hr/>			<hr/>		
1	22	48.3	32	0	37	8	15	39.3

Rate of chronometer, 3 sec. 6-10ths, losing daily.

Index error	{	Forward	30'	20"
		Backward	33	20
			<hr/>	
			2)	3 0
			<hr/>	
			+ 1 30	

Height of the eye, 23 feet.

The altitudes are from the sea horizon.

	h.	m.	s.
Duration of eclipse	1	27	45
Beginning of the eclipse by chronometer	11	40	31
End of ditto by ditto	13	8	16

The eclipse was observed with a telescope 2 inches aperture, 29 inches focal length, power 20, suitably mounted, at the Little Mole; the morning altitudes at the Great Mole (a quarter of a mile North of the Little Mole); and the afternoon altitudes on shipboard, S.W. seven-tenths of a mile from the Great Mole.

By a set of 14 altitudes with a sextant, latitude Great Mole	13° 37' 42"
By a set of 16 ditto with another sextant, „	13 37 46

Mean 13 37 44

Longitude has been estimated 76° 44' W.

Note.—By reference to the chart of the Chincha Islands, it will be seen the position of the ship, where the afternoon altitudes were taken, is on the *central meridian* of the group, the East point of North Island being about six-tenths of a mile East, and the West point of South Island being about six-tenths of a mile West of that meridian.

JOHN HAYDEN,
Master of Ship "Alexander," of Bath, Maine, U.S.A.

The total eclipse of the sun on the 25th of last April, though invisible in England, was visible as a partial eclipse at the Cape of Good Hope, and as a total eclipse in Chili, where it was observed by Padre Cappelletti, who has communicated a portion of his observations to Padre Secchi of Rome, to whom we are indebted for their publication. The weather, it appears, was rather unfavourable at the commencement of the phenomenon, but Father Cappelletti had a very good view of the eclipse during the complete obscuration, which lasted 2 min. 20 sec. During this period he saw an immense mountain of fire, cone shaped, 57° N.W. from the zenith. Nearly opposite a smaller protuberance of the same kind appeared. Both were rose-coloured, but the second was the palest. After the lapse of 38 seconds a series of coloured flames appeared, so that the sun seemed to be on fire, giving the idea of trains of powder igniting successively and with great rapidity. No protuberances were observed on the eastern side of the sun. At the moment of the sun's disappearance three pencils of light became visible in a direction perpendicular to the moon's limb. The most luminous of the three, which was so bright as almost to dazzle the eyes, was in the same position as the larger protuberance. Its western side coincided with the duration of the lunar radius, but its opposite side was inclined. The second pencil was almost diametrically opposite to the former, making an angle of about 15° with the second protuberance; but it was less luminous than the other, and its borders were rounded off. The third pencil was at equal distances between the other two. Observers at Rio Janeiro saw five of these pencils. The darkness is described as having been similar to that of an hour after sunset. The country assumed an ugly greenish tint. An arc, presenting the colours of the rainbow, appeared at a distance of 30° from the sun, and disappeared as soon as the eclipse ceased to be total. Several stars of the first and second magnitude became visible. Nothing remarkable was observed among animals, except that cocks crowed at the beginning of the totality and again when the sun reappeared. Poultry went to their roosting-places, and left them on the reappearance of light. At this moment the sun's limb had an undulatory appearance, like the ocean at Cape Horn with its immense waves. During the totality the moon was surrounded by a ring of silvery light, which was followed by a crown of rays. Her border was somewhat indented, causing the irregularities of the sun's crescent when it reappeared. The state of the weather did not, unfortunately, enable any photographs of the phenomena to be taken.

ON MEASURING THE SPEED OF SAILING OR STEAMING.

The method proposed for obtaining the rate of sailing or steaming in the following letter is not new, although this is the first complete method that we have met with of employing it by means of a table. There can be no doubt that it is just as correct as the old log; but to

ensure correctness something more is necessary, for a few instants of time more or less will vitiate the result amazingly, as will be evident on closely considering the subject. It is very well in principle, but that principle must be strictly carried out.

The table is constructed for 112 feet; but it is evident that any number of feet may be made to answer, by finding the proportion which they bear to the nautical mile.

But whatever number of feet be adopted, the first thing to secure is that the distance in the water alongside to be passed over by the bottle, or whatever float may be employed, be that distance, and neither more nor less. Now this can only be effected by cross marks on board at each end of that distance, measured on board. Suppose a mark on the gunwhale or hammock netting at either end of the line, the outer mark being a topmast backstay or the after shroud of the lower rigging, so that it be in the exact transverse direction of the keel or in the line of the beam. With such marks in one, the bottle seen passing them in the water and the moments of passing observed by a seconds watch, the result found may be depended on. But if left to the observer's eye, which may be before or abaft of the assumed *outer* mark, whatever that may be, no trustworthy result can be had; for the observer's eye will never be twice in the same place.

Let us make an example of our own according to this method, and say that we have good marks for a line of 100 feet; and we will assume that we are steaming slowly, and that the bottle or float passes the marks in 20 seconds. Then to obtain the rate per hour, we say 20 seconds is the third of a minute and the 180th part of an hour. Therefore, multiplying the distance (100 feet) by 180, we have the number of feet the vessel would have passed over in the hour, or $100 \times 180 = 18,000$; and as 6000 feet equal a geographic mile, $\frac{18,000}{6,000} =$ exactly 3 knots as the vessel's rate. So that any one might construct his own table were he desirous of carrying out the plan, and take as a line the most convenient length his ship may afford.

In leaving the subject, we might observe that in a sailing vessel the weather side would be preferable, as our bottle at a ship's breadth from her would be out of the wash of the sea; but if to leeward, a much further distance might be necessary to free it from that. The method would always be a satisfactory confirmation of the log.

We now add the author's letter and table.

Ship "Moneka," Oct. 12th, 1865.

Sir,—Knowing you take an interest in all nautical matters, I have much pleasure in forwarding you the accompanying table, which I have often found useful during my nine years' experience in the China seas. If you think it worth inserting in one of your widely circulated numbers, by doing so you will oblige,

Yours obediently,

ALFRED J. LOFTUS,

Late Commander of the "Kensington," Singapore.

To the Editor of the Nautical Magazine.

A floating body moving through the water, or impelled by currents, passes over a space of 112 feet by the quantities shown in the table, which gives its hourly rate in nautical miles and decimal parts.

Practically, measure 112 feet along both bulwarks, or top-gallant-rails and make permanent marks at each end, then cause an empty bottle or piece of wood to be dropped overboard from the foremost mark on the lee side. Observe the time by watch or chronometer and that of its transition, and enter the table with the elapsed time in the left column, opposite to which will be found the true rate.

Elapsed Time.	Knots.	Elapsed Time.	Knots.	Elapsed Time.	Knots.	Elapsed Time.	Knots.
s.		m. s.		m. s.		m. s.	
4	14·600	41	1·620	1 18	0·851	1 54	0·587
5	13·273	42	1·581	1 19	0·840	1 55	0·582
6	11·946	43	1·542	1 20	0·829	1 56	0·577
7	10·618	44	1 503	1 21	0·819	1 57	0·572
8	9·291	45	1·461	1 22	0·809	1 58	0·567
9	7·964	46	1·434	1 23	0·799	1 59	0·562
10	6·637	47	1·407	1 24	0·789	2 0	0·5530
11	6·195	48	1·386	1 25	0·780	2 5	0·5375
12	5·753	49	1·353	1 26	0·771	2 10	0·5222
13	5·311	50	1·327	1 27	0·762	2 15	0·5067
14	4·869	51	1·303	1 28	0·753	2 20	0·4914
15	4·424	52	1·279	1 29	0·744	2 25	0·4759
16	4·203	53	1·255	1 30	0·737	2 30	0·4605
17	3·982	54	1·231	1 31	0·729	2 35	0·4451
18	3·761	55	1·207	1 32	0·721	2 40	0·4297
19	3·540	56	1·187	1 33	0·713	2 45	0·4143
20	3·319	57	1·167	1 34	0·705	2 50	0·3989
21	3·182	58	1·147	1 35	0·698	2 55	0·3835
22	3·045	59	1·127	1 36	0·691	3 0	0·3681
23	2·908	1 0	1·106	1 37	0·685	3 5	0·3604
24	2·771	1 1	1·089	1 38	0·678	3 10	0·3527
25	2·632	1 2	1·072	1 39	0·671	3 15	0·3451
26	2·548	1 3	1·055	1 40	0·664	3 20	0·3374
27	2·464	1 4	1·038	1 41	0·658	3 25	0·3298
28	2·380	1 5	1·021	1 42	0·652	3 30	0·3221
29	2·296	1 6	1·006	1 43	0·646	3 35	0·3145
30	2·212	1 7	0·991	1 44	0·640	3 40	0·3068
31	2·145	1 8	0·976	1 45	0·632	3 45	0·2981
32	2·078	1 9	0·961	1 46	0·627	3 50	0·2904
33	2·011	1 10	0·948	1 47	0·622	3 55	0·2828
34	1·944	1 11	0·935	1 48	0 617	4 0	0·2760
35	1·878	1 12	0·922	1 49	0·612	4 5	0·2708
36	1·864	1 13	0·909	1 50	0·607	4 10	0·2656
37	1·790	1 14	0·896	1 51	0·602	4 15	0·2604
38	1·746	1 15	0·884	1 52	0·597	4 20	0·2552
39	1·702	1 16	0·873	1 53	0·592	4 25	0·2500
40	1·650	1 17	0·862				

A RECENT ROTATORY GALE IN THE ATLANTIC.

It is at all times agreeable to the admirers of nature to turn over the records of those who have described its wonders before them, and the picture becomes more interesting if devoid of fable, which unfortunately too often lessens the value of many an ancient record.

In Acosta's pleasing description of the discovery of New Granada by Columbus, the difficulties of advancing eastward along the coast in the winter months, and the heavy circular storms which sometimes occur at that season, are most faithfully described. Indeed, the great discoverer, after vainly attempting to beat to windward from San Blas, was compelled to return to Porto Bello, and after leaving that harbour his squadron was nearly lost in a revolving storm off the Musquito coast.

In another article I have pointed out the difficulties which the fast sailing ships of our own times have in accomplishing this feat.

Very heavy gales on this coast are of rare occurrence, probably about once in four years, although the inhabitants are always on their guard until the N.E. trade wind blows steadily home; then, and not till then, they rest secure.

In the autumn of 1865, a remarkable storm swept over a considerable extent of Central America, including the islands off the Musquito coast, the Straits of Florida, and even the neighbourhood of Cape Hatteras. I have not been able to collect much information from those who experienced its fury, although I was on the spot shortly afterwards.

It commenced in the Pacific, and crossed the Isthmus of Panama on the 17th of October, reaching Colon in the afternoon of the same day. Wind from the S.W. (off shore), with a tremendous swell rolling in from the N.W. Had the wind come from the same quarter, it is highly probable that every ship in the bay would have been wrecked, and incalculable damage done to the moles and works of the Panama Railroad Company; for with an off-shore wind their losses are calculated at 60,000 dollars.

So high was the swell in the bay, that the hull of a steamer of 1800 tons was frequently invisible from the shore, although not distant more than one-third of a mile.

At this place the wind only veered a few points, and died away in six hours.

Passing up the Musquito coast, it burst with the force of a hurricane over the town of Blewfields, and levelled every house but two with the ground. The Corn Islands were stripped of all their trees, and not a solitary house escaped destruction. Wild Cane Cay, on which an American named Thompson resided with his family, was completely submerged by the waves, and every living thing drowned. It is calculated that 3000 cocoanut trees were in bearing when the gale commenced. At present a small sand bore above water alone remains to mark the spot where so many noble trees flourished.

The master of the schooner *Electric Light* furnished me with the following particulars. From his narrative it appears that he passed through the centre of the storm about fifty miles to the southward of the Corn Islands.

"I was off the Great Corn," he said, "in this little beauty. She was built for mackerel fishing on the Banks of St. George. The wind was about North, but right South of me was a big black bank that looked awful; still I felt obliged to run towards it, as I was afraid of being caught near the islands.

"As we ran on, the wind veered from N. to N.E., then East; bank still in the same place.

"On October 17th, at 4h. a.m., it burst upon us, and whipped my close-reefed boom-foresail away like a rag. The wind came from all points of the compass, sometimes dying completely away, which only made it more awful. How long this remained I am unable to say,—it appeared an age; towards morning heavy rain set in, and it fell calm.

"On the 16th, at noon, the barometer was 29·80. It had been low for some time, and commenced to rise when the gale came on us. At midnight it stood at 30·10."

Its course northward must have been slow, as it did not pass over Cuba until the 20th, the Florida Strait on the 21st and 22nd, and Cape Hatteras on the 24th.

The following extracts were made from the log of the Panama Railroad Company's brig *Costa Rica*, then on her voyage from New York to Colon.

"Oct. 24th, noon.—Latitude 33° N. by D.R. No longitude given. Wind E.S.E., blowing strong, with hazy, ugly weather.

"7h. p.m.—Wind increasing, accompanied with heavy rain, and veering towards the East. A high, troublesome sea getting up.

"11h. p.m.—Wind E.N.E. Furl'd square sails, and hove to under a close-reefed fore and aft mainsail.

"Oct. 25th, a.m.—Hove to; wind lulling at intervals, but the weather still wearing a most ugly look.

"Noon.—Latitude, D.R. 31° 45' N. No longitude given. Wind coming in heavy gusts from E.N.E.

"P.m.—Gale increasing rapidly in force, and veering to N.E.

"Midnight.—Blowing a hurricane.

"Oct. 26th, 3h. a.m.—Mainsail blew away from the close reef.

"7h. a.m.—Sea making a clean breach over the vessel; got her before the wind, it being our only chance. Wind N.N.E.

"10h. a.m.—Wind had veered to North, with heavy showers of rain.

"Noon.—Blowing a hurricane. Latitude by D.R. 30° 19' N.; longitude 72° 10' W.

"6h. p.m.—Shipped a heavy sea over the stern, which knocked the steering-wheel to pieces, and washed the helmsman and captain (Peel)

overboard—(both were drowned)—filling the cabin and waist. Ship broached to and lay till daylight, when it moderated.

"27th, noon.—Latitude 27° 36' N.; longitude 73° 30' W. Bore up for Nassau, leaky.

"MERCATOR."

Memorandum on Point Lemantin Lighthouse, Port-au-Prince.

Owing to the number of vessels which have run on shore in the vicinity of Point Lemantin, much discussion has taken place regarding the correct position of the lighthouse.

A notice from Mr. Byron, her Majesty's consul at Port-au-Prince, which is published in the *Nautical Magazine*, informs us that it is on Point Lemantin.

Calling at Port-au-Prince on my passage home, I made the enclosed sketch from Fort Isle, which makes it evident that the lighthouse is some distance within the Point; for a glance at Owen's chart will convince any one that, if it were actually on it, the land could not be seen to the right of the tower, as it turns sharply to the S.S.W. from the Point.

WM. W. KIDDLE,

*Commander of the West India and Pacific Steamship
"West Indian."*

To the Editor of the Nautical Magazine.

PROMISCUOUS MANNING OF OUR MERCHANT SHIPPING A CAUSE OF
WRECK.

The attention of the National Association for the Promotion of Social Science has been devoted to the present condition of our mercantile marine—its faults and failings—the blot which it annually shows up in the enormous glaring amount of wreck now increased beyond bearing, and its necessary accompaniment, loss of life and property at sea. How long have we dwelt in former days on this hydra-headed monster, and pointed out its various causes; and, alas! how futile, how utterly ineffectual, have been all the attempts of Government to check it. These were even jeered at the other day, in reference to the construction of ships. A large gathering assembled in the Adelphi voted all the attempts at Government interference to prevent wrecks as useless, and one of the principal features of that meeting was that of showing that in the special provision of water-tight compartments, an instance of the value of which was shown the other day in the Strait of Dover, was not the Government measure. Oh, no; it was the builder's own! proving only that the Government had not gone far enough. But the Board of Trade especially were held as unable to do anything right. The compass—aye, that was a source of wreck, and

still likely to be, although mastered in the navy; not so in the merchant ship, despite the Government measures, by which it is untouched. Nothing was said of deck loads, however, which happily *have* been put down by Government.

The National Association, however, have hit a blot in the management of our mercantile marine that was unperceived by the above meeting, and that is the admission of foreigners as part of their crews. The measure is fraught with evil under any point of view. And even admitting it in some to be *tolerable*, and carried through, what are we doing but making seamen of foreign sailors who are not seamen when they embark; and hence, in the event of war, those seamen are ready to man the ships of their own country and to perform a seaman's duty, which duty they have learned at our expense. But there are ways in which the evils operate very seriously to the detriment of our ships.

The foreign sailor may be ignorant of our language, and requires much of his duty to be done for him, on this account as well as his ignorance of a seaman's duty; for he neither understands our terms nor the lead of the ropes. But all these he learns at our cost. Now, had his place been filled by one of our own countrymen, the sailor when he became a seaman (for there is a wide difference between the two) would be an acquisition to his country. The case of the *London* is reported to have furnished an instance of the ignorance of the foreign sailor.

The subject is well pointed out in this memorial, and urged especially by Admiral Sir Edward Belcher on the attention of the Government, as one of the prolific causes of wreck; and we may also add the nursing of an evil which hereafter may prove destructive of our own supremacy,—in fact, we are thus carefully forming the means of our own future defeat. Let a British ship, we say, be manned by British seamen.

The memorial runs thus:—

“The Council of the National Association for the Promotion of Social Science having had under their consideration the facts and arguments set forth in the annexed address of the president of the department of economy and trade, which relate to the present condition of our mercantile marine, would submit—

“That the terrible amount of loss of life and the vast sacrifice of property from shipwreck, and their continued increase, notwithstanding the measures taken for their prevention under the authority of the Board of Trade, and the improved constructions for the preservation of life and for saving vessels from utter loss, constitute a case for careful and solemn inquiry as to the causes of failure of the existing means, and as to what other means appear to be available for efficient prevention.

“But the safety of the subject and of navigation, and the special interests of the large body of mariners, appear to involve another and distinct topic of inquiry,—namely, the proper elementary education and training of seamen for safe, good, and intelligent service and conduct.

"It was set forth as an axiom by the late Captain Basil Hall, and it is confirmed in general by other professional testimony, that in nautical affairs nothing is so wasteful as ignorance; while captains and masters of the greatest experience in the mercantile marine declare they can work a vessel more safely with fewer men, if these are educated, than with a larger crew, if, like the bulk of common seamen, they are uneducated, ignorant, and untrained. It is adopted as a principle of legislation, in relation to children and young persons employed in manufactures and trades, that they shall not be employed under conditions which preclude them, as subjects, from the benefits of a proper elementary education; and the working of the legislative provisions on that principle are found to be in the economical interests of the branches of manufacture in which they have been adopted.

"The conditions of dangerous ignorance and want of forethought in which large proportions of adult seamen are found are due to the circumstances under which in early childhood or in youth they are taken on shipboard, in the mercantile marine, without any elementary education, and without any of the means of subsequent reparation of the default, such as are provided for the royal navy. It appears to be admitted that children ought not to be taken on shipboard before the tenth or eleventh year.

"The council therefore pray that a solemn inquiry by competent and impartial officers of the royal navy may be directed, under a special commission, into the matters alleged in respect of the loss of life and property, with a view to the preparation of such measures of legislation as the evidence may appear to require. And also that it be referred to the Children's Employment Commission, who have under examination the extension of legislative provisions for securing the education of children employed in manufactures and trades, to inquire and report on the application of provisions on the like principle for securing the proper elementary training and education of young children engaged in the mercantile marine."

Mr. Chadwick, C.B., said that he had advocated it as a rule that all important branches of legislation on new subjects should undergo, from time to time, authoritative revision as to the defects of legislation in parliament, and as to the defects in the administration. This course was peculiarly applicable to the great subject-matter of the great loss of life and property in the mercantile marine; for, according to the statistics of the department itself, as well as that from other sources, the amount has gone on increasing. The average for the last five years, according to the Board of Trade accounts, had been 558 vessels totally lost, 930 wrecked or subjected to partial loss, being an annual average of 1,488 casualties, involving an annual average loss of 875 lives on the coast alone, and that notwithstanding the exertions of lifeboats and various voluntary means of saving life, by which in 1862 more than 4000 lives, and in 1863 more than 5000 lives, were saved from destruction from the occurrence of shipwrecks, the number of casualties were reported to have increased last year to upwards of 1,744.

During the last year a greater proportion of lives, he believed, had been saved by the extraordinary exertions of the voluntary lifeboat association. But these losses were on our coast alone. There were no reliable statistical returns of the losses of British vessels abroad that had gone out and never been heard of. That the great mass of these losses were preventible was proved by particular inquiries into the causes, which were generally ignorance, neglect of charts, lead, and other gross defaults, and very rarely from any causes, such as of old, in maritime language, were laid down as acts of God; and, further, that under conditions of efficient organisation and responsibility they were preventible.

Thus as, for example, in the North British Royal Mail Company, which included the great Cunard line, during twenty-five years, and in the midst of the terrible navigation, amidst the fogs, icebergs, and fishing-boats of Newfoundland, there had not been a single passenger lost from any default of the company or its officers. The great Peninsular and Oriental Company had carried upwards of 28,000 passengers without losing one, and they had only lost recently sixteen in a cyclone. The losses of sailors were proportionately small. Under proper regulations and responsibility, especially under the condition of payments, not for passengers embarked, but for passengers landed alive, the security of transport was remarkable. Regulations there must be, the public in America as well as in England were loud in demanding them.

The shipping interests had two principles for their choice,—one, a very stringent and particular regulation as to construction; the other, additional responsibilities and payments for lives lost, as also principles for self-insurance for cargoes, leaving them to find what means they thought fit, and free from authoritative directions therein. This was the course of legislation he advocated. The legislative principle was to concentrate responsibility on those who had the best means of prevention,—viz., the owners.

Men connected with insurance had conceded that full insurance was inexpedient. It was notorious that ships were sent out, and crews were sent out, and captains appointed to command who would not be appointed but that the vessels were insured. The relief given by full insurance from the consequences of ignorance diminished the demand for competent training in education in men as well as in officers. How largely the element of ignorance entered into the element of danger was provable by the statistics of the department. But whereas three out of every four of the masters have now undergone examination, and have obtained certificates of competency, five out of six of masters of vessels that were lost were men who were unexamined and uncertificated.

Men of nautical experience agreed that they would work a ship with fewer hands and more safely with men who were trained and educated than with men who were untrained and ignorant,—that is, the common mass. Now it was proved by the outcome of such schools as the

Stepney District School, where preliminary training was given that three could be made as efficient as five for all industrial purposes,—that is to say, by physical as well as mental training. It was needful to give the same protection to those employed in the mercantile marine against exclusion from education that was now given to children employed in the larger manufactories.

The council of the association prayed that this topic for inquiry might be referred to the Children's Employment Commissioners, who are now making provision for the extension of educational securities from trade to trade. The shipowners and masters complained that the inquiries of the Board of Trade were too close and the sentences objectionable. On behalf of the public, the association would complain they were too unfrequent, too loose, and far *too lenient*, as compared with the sentences which would be given for the light defaults of officers of the royal navy; in which it was right to state that the losses on the vessels afloat and employed in dangerous seas were not above one-seventh the average of losses amongst the mercantile marine. The loss in cargoes in mercantile marine was estimated by Admiral Washington at upwards of £2,000,000 per annum, and it had certainly not diminished since that period. The real shipping interest was in the prevention of such waste, as well as the waste of life, and inquiry leading to more efficient measures of prevention would be to their advantage, as inquiry and registration to the extent to which it had been adopted had proved to be to the manufacturing interest of the country.

Rear-Admiral Sir E. Belcher said that one of the greatest evils in the mercantile marine is the practice of entering seamen as able who would not be accepted in the most inferior capacity in the royal navy; the second, the admission of foreigners, on the understanding that they will desert or be left behind at the port bound to. Respecting thoroughly educated seamen, though weak at first, they are soon roused to wonderful activity. From his own experience he preferred lads trained for five or six years in the interim. Lads of superior education, after payment of premiums of from £30 to £60, were forced out to make room for others, or left in disgust with mates, captains, or inferior accommodation. Many educated lads could be got if their duties were not made so low, or their treatment so bad. As to the loss of vessels, the mercantile were not to be compared with the navy. Culpability in the navy always met with punishment. He had witnessed the carelessness of captains in the mercantile service, and seen their immobility when a vessel was once *legally* grounded. So long as insurance covers the vessel and cargo no extraordinary exertion can be hoped for by *captain or crew*. He thought that passage money should not be paid till the vessel arrived at its destination, and that the law of the road should be enforced on the owners.

Some observations having been made by the President and the under-secretary, Mr. Farrer,

Mr. Chadwick said that the loss of life was a fault, and that owners

should be responsible. It would be to their interest, as it would save them and others from the expence of litigation.

The President having made some observations as to the doubtful nature of some of the statistics adduced, said it was not in his power to grant the royal commission as recommended, but that he would give the subject his best attention.

STEAM ACROSS THE PACIFIC.

In our volume for 1860 we have preserved some interesting information on the subject of steam in the Pacific Ocean. It will enable a voyager to plan his expeditions from Panama to any part of it excepting to Australia,—a defect which we are glad to find is at length about to be remedied by our own capitalists. There certainly is no part of the world so essentially adapted for steam navigation as the Sydney voyage from Panama, touching at points on the way, and therefore it is one from which the utmost regularity will be obtained. In the inter-tropical latitudes a fair-way wind will moreover be found all the way to Australia; and the return voyage to Panama will be no less favoured in the counter trades to the South of the Southern tropic with Westerly winds. In fact, looking at the Pacific character which the whole voyage from England seems likely to bear, it seems in our estimation likely to become the favourite route for Australian passengers.

We learn from the *Daily News* that “the twin screw steamer *Ruahine*, which has just arrived home from the West Indies, where she has been employed in carrying the mails between St. Thomas and Colon, left London in February for Wellington, in New Zealand. She will reach that port in April, and will immediately commence running between Wellington and Panama with the New Zealand mails. The *Ruahine* will be followed by the *Caicorra* and other steamers named after places in New Zealand. The voyage between New Zealand and Panama will occupy thirty days at full steaming, without a single stoppage. The distance is 7000 miles. The owners of the *Ruahine* have a ten-mile mail contract, and a nine-mile one. They have declined an offer of £1000 a voyage from the French government for touching at Tahiti. The New Zealand mail, after reaching Panama, will be brought from Colon to England in the royal mail steamer which is due the 29th of the month. Great interest is felt in the success of the *Ruahine* for several reasons: she will be the pioneer ship of the long-talked-of mail steampacket communication across the Pacific; she will run the longest ocean mail voyage without stopping which will ever have been made; and she will thoroughly test the value of the twin screw principle.”

This twin screw principle has from the first appeared to us as
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excellent, and we have some recollection of this same vessel, the *Ruahine*, beating a Boulogne mail packetboat across the Channel; and then, although entirely unacquainted with the company, we are glad to see their management displaying good judgment.

The South part of the Pacific we seem to have nearly to ourselves; our French neighbours at Tahiti and New Caledonia do not appear as yet to have established any mail line to their islands. But the Americans from New York are as busy as ever in the North; and we find in the *Colonial Advertiser* of the Sandwich Islands the following new lines from Panama to Japan and China. The voyager will have the choice of visiting those parts now either by the Peninsular and Oriental vessels, by the Overland and Singapore, or by Panama, and, if required, by California and Vancouver's Island. The paper says:—

“We have always been firm advocates of *steam* and *steamers*, and have on more than one occasion devoted our columns to urging their introduction both for inter-island and foreign service. During our absence from these islands, we have had frequent opportunities for witnessing the contrast between steamers and sailing vessels. Everywhere steam is becoming the chief handmaid of commerce, agriculture, and civilisation, and the whole world is destined to bow to her supremacy. With these views we have sought to have steamers introduced here among the Sandwich islands, and between these islands and California, as our main hope for a permanent revival of business and agricultural prosperity.

“It has already been announced in our columns that the Pacific Mail Steamship Company has secured the contract for carrying the American mails between San Francisco and China, and for that purpose will establish a line of first-class steamships between San Francisco and Hongkong. The long talked-of project of steam across the Pacific is soon to become a fact. The company which undertakes it is a wealthy corporation, amply able, having a capital of over twenty millions sterling; so that there is no such word as ‘fail’ about it. Besides, it is undertaken under the direct patronage of the American government, with the liberal bonus of half a million per annum for the mail service. The plan of the company, as we understand it, and so far as it has matured, is this: to have four first-class side-wheel steamers, of 4000 tons each, (nearly similar to the *Persia*, *Vanderbilt*, and other large Atlantic steamships,) drawing 18 or 20 feet of water, and leaving San Francisco once a month, to touch at Honolulu for coal and to land passengers, thence to Kanagawa in Japan and to Hongkong. Returning from China, the vessels will either go directly from Kanagawa to San Francisco by what is called the Northern “circle-sailing” route, over which fair westerly winds prevail nearly all the year; or else from Kanagawa to Honolulu, with fair West winds two-thirds of the way, and thence to San Francisco. The distances and time occupied by these steamers from California to China, estimating 250 miles as the average daily speed, will be about as follows:—

	Miles.	Days.
San Francisco to Honolulu	2,100	8½
Stoppage at Honolulu		½
Honolulu to Kanagawa	3,400	13½
Stoppage at Kanagawa		½
Kanagawa to Hongkong	1,500	6
Total distance and time	7,000	29

“The return trips, if made by the same route, would probably, owing to head winds, be at least *two days longer* making thirty-one days from Hongkong to San Francisco *via* Honolulu. But if these steamers return by the Northern route, the distances and time will be about as follows:—

	Miles.	Days.
Hongkong to Kanagawa	1,500	6
Kanagawa to San Francisco (no stoppage)	5,000	20
Total distance and time	6,500	26

“Now, as we understand it, the company does not wish to take freight by the China steamers from San Francisco to Honolulu, or from Honolulu to San Francisco, but simply stop a few hours for coal and passengers, as the taking and discharging of freight would detain the steamers several days at Honolulu, both in going and returning. The return trips are so much shortened by the Northern route (five days shorter), that it is very probable that it will be adopted; though this will depend on whether the ships can carry coal for twenty-five days, which is the least they should venture out with on the long voyage. These steamships will commence running just as soon as they can be made ready, which will probably be during the summer or fall of 1866, the contract allowing them to commence at any time, but not later than January 1st, 1867. But, after all, it will require actual experiment to determine the best routes and stopping places. It will be the greatest steam enterprise ever undertaken, and must adapt itself gradually to the actual necessities of the localities it passes through.

“In addition to the above great commercial enterprise, we understand that the Pacific Mail Company also intend to establish, auxiliary to their China line of steamers, a line of *propellers between San Francisco and Honolulu*, to carry freight and passengers between these two ports only, and to run twice or three times a month, as may be necessary. Here is just what our growing commerce has long been calling for, and which the establishment of a *monthly* line of China steamers, simply touching at this port for coal, could never furnish. We want such a line as this, one which will bring the two ports within ten or twelve days of each other. We are sending to San Francisco about 1500 tons of freight *per month*, and receiving from thence perhaps 1000 tons monthly. Coal taken for the China steamers would always give the propellers full freights to Honolulu, and render the employment of coal ships unnecessary. Not far from 100 passengers pass between the two ports monthly. This is the *present*

trade and travel over the route, and every one knows that it is increasing each year fully 25 per cent. With a well-conducted line of large and commodious propellers, such as are now employed in the New York and Liverpool freight trade, bringing the two ports in close and certain proximity with each other, the increase in both trade and travel would be great.

“This line of propellers will probably be started within the next six months. Under the management of the able company which contemplates it, we feel confident that it will be conducted for the benefit of our island commerce; and that therefore all our merchants, planters, and agriculturists will unite to encourage its establishment, though it may cost at the outset some sacrifice of personal interests. The two lines of freight and passenger packets that are now running have well served our commerce, and the owners and agents of them deserve thanks for what they have done, and for the zeal with which they have so long and so faithfully advanced Hawaiian commerce; for it may not be generally known that the packets now running are not very profitable to their owners. But the advantages of steam are too apparent to be gainsaid. When our merchants and planters can visit San Francisco by steam in ten days, dispose of their produce and make their purchases in another ten days, and be in their counting-rooms or on their plantations within thirty days from the date they started for California, there will be more travel and more pleasure in travelling, and with regular steam communication there is always a corresponding increase of trade.”

STEAM COMMUNICATION BETWEEN SAN FRANCISCO AND CHINA.—A measure for establishing a monthly steam line to China has been approved by the Washington Congress. San Francisco is to be the port of departure, and the vessels on their route to China will touch at Honolulu, and also at some port in Japan. The subsidy per annum is not to exceed 500,000 dollars, which at the present value of the American currency will be equal only to £50,000. The schedule of time, it is observed, between London and China is now about sixty-two days, and it is proposed to make it by this route, when the contemplated Pacific Railway shall have been built, only fifty days. Further, it is remarked:—“In regard to the practicability of maintaining a steam line between San Francisco and China, with encouragement from the general government, there seems to be no doubt. The apprehended difficulties respecting the supply of coal on the Pacific have essentially diminished since the subject was first considered, and steamers now run with much smaller consumption of fuel. Besides, there has been in course of development among the nations of Eastern Asia an appetite for foreign traffic. They have numerous wants of which before they were unconscious; and they offer for export silk, tea, cotton, and other products in increasing quantities. The specie freight outwards and silk freight homewards promise to be the most remunerative. Added to this is a passenger traffic to the treaty ports

in China, the ports on Formosa, Japan, and the Amoor River, while the Eastward travel would embrace a large proportion of those having business with the Pacific coast of America, North and South. The distance from San Francisco to the South-east point of the Japanese island of Matsmai, which has been spoken of as a good place at which to touch, is 4,100 miles; to Cape Awa, at the Southern end of Nippon, is 4,474 miles; from San Francisco to Honolulu, 2,100 miles; and to the Bonin Islands, 3,200 miles. The whole distance to Shanghai through the Straits of Matsmai is 5,373 miles, or about twenty-one days' steaming at 250 miles per day. This line once established, ninety days will be sufficient to make the circuit of the globe. As compared with the old routes, nothing will be experienced from the typhoons of the China Sea, the hurricanes of the Bay of Bengal, or the fearful storms which prevail in the Straits of Malacca."

MODERN NOVEL SHIPS.

By the above title we do not intend any allusion at present to our large class of iron shipping, but simply those of two kinds that have sprung up in the minds of our naval architects, that may be well considered not only modern, but of a very novel kind; and these are the *Cigar Ship*, a kind of travelling bathing machine for deep water, and the *Hydraulic Steamship*, which has pretensions of a very superior kind, and far more likely of useful realization. We find them both among the prints of the day and both have already displayed their extraordinary powers on the unruffled bosom of old Father Thames. What they will do on the ocean wave remains yet to be seen. But first of the celebrated *Cigar Ship*.

Many of our readers may have observed the very extraordinary production above named as a "ship" of iron building somewhere near Blackwall, and will perhaps have exclaimed "What next?" Doubtless these are days of change and innovation, to which floating vessels are no exceptions, as turret ships, hydraulic ships, and torpedoes bear witness. Yet here is a ship, possibly for canals, certainly not for sea, unless a submarine voyage be intended. And as a curiosity in *naval architecture* we preserve the following description of her from the pages of the *Mechanics' Magazine*. She is said to have made a voyage to the Channel; will she do so to America, as she is said to be American? Our volume for 1864 contains other particulars of her: her doings remain yet to be performed and chronicled.

Sir,—As I think the history of this curious vessel must be interesting to your readers, I send you a few remarks upon the subject. I find that, in 1858, Messrs. Winans took out three patents. The first defines, simply, a new form for vessels for the purpose of preventing rolling. Of course, a circular midship section is a form which is not

likely to roll from the action of the waves, and it seems to have occurred to the inventors that, by adopting that form and tapering it off to a point at each end, a vessel might be built which would be incapable of rolling. Ordinary vessels change their form of immersed section with a change of inclination, and the circular form is the specific improvement.

The second patent describes a mode of propelling this vessel. It is to be divided in the middle with bulk-heads, a wheel to be inserted between the fore and aft bodies, the body of the wheel being about the same size as the midship section of the vessel and formed as a water-tight casing, and projecting beyond this wheel are the floats to act on the water as a screw propeller partly submerged. A good notion of the vessel thus far may be obtained by sharpening the ends of a German sausage, and cutting a slice out of the middle, without removing the slice. There now arises the difficulty of holding the two ends in position, and leaving the wheel free to revolve, and the mode proposed certainly seems very insecure.

The third patent describes a mode of applying similar propellers to ordinary vessels, and I may dismiss this by saying that it is a very bad mode indeed. There is nothing definite stated as to the draught of the vessel, whether the points were intended to be under water or above; but from the numerous prints of the vessel that appeared some six or seven years ago, displacement appeared to be almost ignored. The central screw wheel is now abandoned, and very wisely, as the head and stern of the present vessel are not likely to be separated in a heavy sea,—an eventuality that would very likely occur with the central or midship propeller.

The first point worthy of consideration is, Will all rolling be prevented? I think not. Although the action of the sea will not cause it to roll, most likely a pendulous oscillation will arise; and if so, a pair of Belgic keels, or something equivalent thereto, will be absolutely requisite, for without some such contrivance this disagreeable motion would be continually arising on a voyage. There is another kind of rolling which will be a peculiarity to this vessel more than to any other, arising from the reaction on the vessel of her large screw propellers, tending to give the vessel a strong list in the opposite direction to that in which her screws are turned. This is on the presumption that both screws will work the same way. The evil might be remedied by making one wheel a right-handed screw, and the other a left-handed one. If both wheels turn one way she will have a great deal of what may be called leeway. If the two screws are worked as right and left-handed, a strong tendency to turn, as on a pivot, will ensue, which must be overcome by the rudders. If one wheel becomes disabled this tendency to turn round would of course be increased.

The next point is, Will she be fast? There cannot be much doubt about this, if the enormous power of the engines, as reported, is really true, and if the people on board can keep a dry coat and get a good supply of air while she goes fast, and if the water does not get into

the engine room and put out the fires, for any large wave must go over all. What freeboard she has is of such an unliftable kind that she will be an awfully wet ship.

The last point I shall notice is, Is she an improvement on ordinary vessels? To this a decided negative must be given. A vessel of the ordinary form, and with her breadth and twelve times her beam (the cigar ship is sixteen times her beam) would, with the same power, be as fast, more seaworthy, carry more cargo, and cost less.

As there are some people who profess to see very deeply into motives, I may mention a rumour that has gone about that the cigar ship has been built with a sinister intention for warlike purposes, and is to be employed as a ram. The rumour is almost too foolish to mention, but it may be as well to say that such a use is impossible, and that the two points will be so extremely tender that the commander will have to take care that they are not knocked away in ordinary working, and in a heavy sea will almost wish he had outer bearings to his axles.

I am, sir, yours, &c.

1, *Clifford's Inn*, March 17th.

T. Moy.

The Hydraulic Steamship.

We find the following account of this experimental vessel in a recent number of the *Daily News*. She is said to have more than realised the expectations formed of her, and certainly the mere fact of keeping pace with our fast Gravesend boats seems to indicate the dawn of a new power of propulsion for ships, as remarkable as it appears to be effective. The account of this experimental ship runs thus:

An unpretending-looking little steamship of 87 tons, named the *Nautilus*, left London Bridge on the morning of the 14th of April with a company of practical engineers, naval architects, and other scientific men on her decks. She was innocent of paint, unencumbered with masts and rigging, and looked altogether rather rough and home-made as she started off on her trial trip. The novelty was that the vessel was propelled with neither paddle nor screw, and the river-faring people stared with the greatest incredulity on the strange innovation. The *Nautilus* is the property of private gentlemen, who have sufficient faith in what is known as Ruthven's Hydraulic Propeller to fit her up with it, and challenge the attention of the scientific world to the invention. The principle is so simple, and its promised advantages are so enormous, that, if the expectations of the promoters are realised, the revolution in merchant shipping will be almost as great as that caused by the substitution of iron armour for oaken planks in the navy. The importance of the results involved certainly deserved the close observation with which the scientific gentlemen on board watched the experiment; and the almost unanimous conclusions arrived at appeared to be highly favourable to the newly applied motive power.

The principle can be described in a single sentence. In the centre of the ship, and below the water line, there is fixed a kind of Turbine wheel, supplied with water through holes in the vessel's bottom, and which, being set in motion by an ordinary steam engine, revolves rapidly, and drives out a thick perpetual column of water through apertures, termed nozzles, on each side of the ship. This propelling power, unlike the paddle and screw, does not force the vessel ahead by pushing back the water, but acts directly on the vessel (something like the recoil produced by firing a gun), preventing of course that loss of power caused by every revolution of the paddle or screw. The all-important agents, the nozzles, are the tubes through which the water is expelled from the wheel to the outlet apertures on the water line. When the steady stream is directed towards the stern the ship goes ahead; when to the stem, she backs; and when the streams flow one each way, the vessel, as if on a pivot, turns on her own length. These nozzles are so potent that they can be used to steer as well as to propel the ship; so that the smashing of a rudder would be a matter of perfect indifference. The advantage here is immense, when it is remembered how many disasters at sea have been traceable to the loss of a rudder, the breaking down of a paddle, or the fouling of a screw. In the *Nautilus* no portion of the machinery is exposed. If she were a ship of war, the invariable attempt of the enemy to shoot away paddles, screw, and rudder would be therefore useless; and if she were a merchantman, she would not labour under the disadvantage of paddles to diminish her sailing powers, or of that inevitable weakness of stern which attends the use of the screw. Again: the leak, which in other ships too often means hopeless destruction, becomes here, if not a positive blessing, at least no source of danger or inconvenience, because the greedy wheel can be made to swallow up the dangerous water, use it to increase the speed of the vessel, and in doing so to send it out considerably faster than it came in. These are put forward as the main advantages; but it will at once be seen they would involve others, secondary perhaps to a certain extent, but still fraught with benefit. Thus the uniform working of the machinery prevents vibration, and consequent wear and tear; the pitching and rolling of a heavy sea produces none of that vexatious reaction which strains every part of the ship; the steamer leaves no swell and very little ferment behind; the peculiarity of the machinery enables the hull to be built on the lines of the best clipper ship that sails; and then there comes in the additional claim of economy, both in construction and working.

The *Nautilus* was tested with one of the ordinary iron paddle boats, and in the race down towards Gravesend she held her own, and once or twice got well ahead. The average speed was $11\frac{1}{2}$ miles an hour. It remains to be seen whether there is any limit to the application of this principle. Its success in vessels like those plying from bridge to bridge on the Thames was demonstrated without hitch or difficulty, and, so far as could be gathered from the trial, nothing can be better for river or canal navigation than boats propelled by this patent.

Shallow water seems to be no obstacle, and running aground is said to be an incident demanding very little anxiety. Most remarkable of all, by means of the nozzles, the vessel can be brought to a dead stop within half her own length, like a troop of cavalry charging a square. The time-honoured "call-boy" will find his occupation gone, for the ship can be stopped or her speed lessened by handles from a deck platform controlling the hydraulic propeller, and without the general vocal communications from or to the engine room. The Admiralty are so convinced of the fitness of the principle that they are now building a gunboat (the *Waterwitch*) at Blackwall, to be worked by the hydraulic propeller. This gunboat will be launched probably this month, and as she is to be of 778 tons burthen and 167 horse power, her trial will in a measure decide a very important question as to the future of steamships.

The hydraulic propeller is not by any means a new invention, although its introduction on the Thames is comparatively recent. Like numerous other valuable inventions in shipbuilding, it came from beyond the Tweed. So far back as 1839, Mr. Ruthven, of Edinburgh, the patentee, began to theorise and adapt. He built models, improved them, exhibited them, got a patent for his principle, and for many years endured the usual difficulties arising from the ignorance and prejudice of indifferent or hostile persons. In 1851, a small vessel, 30 feet long, fitted up with the hydraulic propeller, was placed on the Thames, and a model 12 feet long was sent to the Great Exhibition. The jurors had nothing to say about in their report, but the inventor received considerable encouragement from practical men who saw the little craft on the Thames. In 1853, a ship, partly purchased by the Prussian government, was built for the Oder, upon which river she has been running ever since. The patent expired in 1863, and the Privy Council extended it for ten years. A good deal of most important evidence was given in favour of the invention before Lord Justice Knight Bruce on the application for renewal. The chief effort, however, to bring the invention fully and fairly before the public has been made in the building of the *Nautilus*, whose trial trip we have described. The public will have no difficulty in seeing her, as her owners invite the fullest inspection. At present, as we intimated, the *Nautilus* is not an exhibition ship, but a mere shell, fitted with two engines of 10-horse power each. She draws 2 feet of water, is 115 feet long, and being 7 feet 2 inches deep stands rather awkwardly high out of water. The hull closely resembles the *Citizen* boats, but being somewhat broader, deeper, and fuller in the lines, seems heavier. Having nothing but a temporary mast, or rather flag-staff, before the funnel, she looks conspicuously bare; but the main object—namely, the illustration of the principle—has been realised. Looked at from shore, the thick stream of water issuing from the nozzle may be seen shooting along close to the side like a white column of glass. It expends itself without causing much disturbance of the surrounding water.

Amongst the company were Admiral Elliott; Mr. Murray, chief

engineer of Portsmouth Dockyard ; Mr. Steele, inspector of machinery to the Comptroller of the Navy ; Captain Engledue, manager of the Thames Iron Works ; Capt. Williams, Capt. Watts, Capt. Lovell, and Capt. Thomas, of the Peninsular and Oriental Steamship Company ; Mr. Dudgeon, engineer to the Millwall Company (who are building the machinery for the *Waterwitch*) ; Mr. Hamilton, and Mr. Smith. We believe there will be an official Admiralty trial trip shortly.

American Monitors.

At a lecture recently delivered before the United Service Institute, Capt. Horton is reported to have said that "monitors are going out of favour in America,—in fact, most of them are now being turned into torpedoes;" the answer to which, without our desiring to enter controversially into the subject, may be found in the fact that every possible improvement and finish that engineering talent and the experiences of the late war can suggest are being put upon the latest monitors built, of the most powerful class of which, one, the *Passaconaway*, may be cited as an instance. This monitor is 345 feet long, 56 feet wide, and 18 feet 10 inches deep, 2,127 tons, and draws ready for sea 15 feet. She has two turrets, mounting each two 20-inch guns throwing 1,080 lbs. shot, with 15 inches thickness of wall (5 inches solid and 10 inches of laminated), and her side armour is 12 inches thick of solid plating. The most powerful engines yet constructed for monitors are being built for her, so that she shall attain an average speed of thirteen to fourteen knots. Sir Morton Peto also said, during a recent debate, that the monitors were not "sea-going" craft,—an assertion disproved almost daily in America by the outside passages made by monitors along the whole coast from Maine to New Orleans. Sir Morton evidently misunderstood or was misinformed on this point, probably owing to the fact that so far are Americans from looking with disfavour on the monitor system, as evidenced practically in our reply to Capt. Horton's remark, that many officers of their navy are not over-anxious to have their monitors too enthusiastically approved by other nations, from motives that are obvious.

It is conceded, we think, that excellence in a war ship depends on the possession of a number or all of the following properties, ranged in their order of value,—viz. : 1, speed ; 2, sea-worthiness and quick manœuvring power ; 3, strength, and all possible simplicity of build, fitment, and machinery ; 4, a battery, combining handiness for working with power and precision of projectile, whether large or small ; 5, small target surface, little top-hamper, and steadiness or ease of motion in a seaway ; 6, security from raking or vertical fire ; 7, large capacity for coals and stores, and sufficiency of good quarters ; 8, least draught for measurement ; 9, durability ; 10, recuperative power, or capacity for expedients in emergency. These qualities, singly and combined, form the means requisite to carry out, in such degree as they may exist, the two great principles of naval warfare ; the primary one being power of attack, and the subordinate one power

for defence or escape when hopelessly overmatched. Without wishing to be understood as constituting ourselves the champions of the monitor system, we may with reason set forth the arguments of its partisans, among which, referring to our preceding scale of a man-of-war's qualities, they claim as established facts, the possession by monitors of the following points:—1, strength, &c., of build; 2, capacity to carry with ease and work the heaviest ordnance yet made to better advantage than any other class of vessel; 3, little or no target surface, no top-hamper, and easy movement; 4, security from raking or vertical fire; 5, equal capacity for stores, &c., with broadside ships; 6, one-half the draught of water as compared with broadside ships throwing far less metal; 7, greater durability and less straining: making, out of the given ten points of requisite excellence, seven, claimed absolutely, and in some to a higher degree; while of the remaining three, the question of speed will eventually, with time and experience, so improve, as to be greater than that of ordinary ships, though even now their best monitors make $10\frac{1}{2}$ knots. Seaworthiness remains to be tested, and recuperative power, &c., will be solved by experiences now going on or in contemplation. But admitting the lack of these, they claim that monitors possess power of attack and power for defence so thoroughly, and to an extent so far surpassing any other description of ship, as by long odds to far overbalance any real or apparent defects as compared with broadside ships; and if it should be that in future naval battles the victory shall remain, as a rule, to the combatant who can show effective fighting front the longest while sustaining the least amount of injury or risk, then must preference be awarded to the monitor system. It is contended also, that on another point of no small consequence, that of relative less cost, monitors have the advantage, in the ratio of about one to five, over broadside ships throwing the same weight of metal. Viewed as mere constructions, "half-sunk rafts shut out from the light of heaven," as Mr. Reed terms them, or in whatever other disparaging sense, we hold all such considerations of mere taste or prejudice as totally beside the one great desideratum of ability to cope effectively and victoriously with a foe, in whatever more pleasing or accustomed form the latter might appear to the eye.

As regards comparative cost and numbers, some idea may be formed of the two systems by stating that for the 100,000 tons of iron-clad broadside ships composing her Majesty's navy, and which have cost over £8,000,000, there could have been put afloat a navy on the American plan composed thus:—50 two-turret monitors, and 20 swift cruisers of 2,500 tons, at £100,000 each, with 16 smaller swift ships of 1,500 tons, at £60,000 each; the whole fleet of 86 vessels throwing an aggregate maximum broadside of 100,000 lbs. against not certainly over 50,000 lbs. weight which our fleet of 30 iron-clads could combinedly throw; or, leaving the cruising ships out, the 50 monitors, armed with 400-pounders, would together give 80,000 lbs. at a single broadside. But, even admitting the possibility of the iron-clads throwing as much metal, there would still remain the disparity

arising from 50 being opposed to 30 ships, of whatever sort they be—that is, nearly every single broadside ship could be engaged at the same time by two monitors,—a disadvantage that will at once occur to any practical man who has ever seen a ship obliged to fight star-board and port batteries simultaneously for any time. The number of men would be for the 30 iron-clads somewhere about 15,000, while as each two-turret monitor requires only about 200 all told, 10,000 men would suffice for the whole fleet of the latter, or one-third less than the former,—a matter of no slight moment, considering the difficulty that frequently occurs of manning our ships.

In actual fighting experience, the monitors, if we may credit the official reports of the United States Government, have thus far satisfactorily achieved the work cut out for them, saving the foundering of one, and the destruction by torpedoes of some half-dozen others,—accidents from which no class of ships are exempt. As to the much-mooted question of why Charleston was not forced, materials for discussing the matter of a sufficiently precise nature are not yet before the world. But we may be permitted in the absence thereof to endorse the opinion held by more than one officer of experience, that in so far as the power to do so successfully existed before the besieged had leisure and opportunity to obstruct or command by shore batteries every possible approach past Fort Sumter, the monitor fleet could, and should, in conjunction with the land forces, under General Gillmore, have readily reduced the city. As it was, time was fruitlessly expended in bickerings until the whole thing became a very inferior repetition of Sir Charles Napier's feat in *not* taking Cronstadt by a *coup de main*. We, of course, are judging the matter from a mere engineering or warlike point of view, without at all wishing to enter into the question of right and wrong, as between Federals and Confederates, and are, as well, quite ready, on proper showing, to modify the opinion thus expressed. But until new and satisfactory light be thrown on the subject, we cannot but ascribe failure to men rather than to want of the proper means.

That monitors, in common with some other things emanating from America, are viewed disparagingly, as is the fact, does not speak well for the ingenuousness of opinion which should ever have precedence in matters of mere fact; but that such is the case in this instance we cannot in fairness deny, while utterly at a loss to discover any valid or worthy reason why such should be the case. It is more than probable that, as the oldest and strongest naval power on the globe, it may seem hard for us to swallow such a wholesale transformation, on a field we have made peculiarly our own, as is implied by substituting "rafts with cheese-boxes stuck upon them" for the noble-looking ships which may never again carry easy victory wherever they appear. Professional men of any branch are naturally loth to resign old ideas, albeit in favour of actual facts of newer date, and in nothing has this tenacity more perseveringly been shown than during the past ten years, in reference to our war navy. Had the strife been represented by blows instead of words, Whitehall would over and over

again have presented a very Flodden Field after the ever-recurring battles of ships and guns which have marked with singular persistence the reign of the present Admiralty Board, and, even after all, advocates of the old wooden walls seem as loth to give in and as ready for a tilt as ever. No wonder, then, that things should go awry, and victory waver, as it does every now and again, between the popguns and fair stand-up fight of old times and huge Armstrongs at long ball. But the joke is getting stale, and the nation is becoming tired of seeing so little practical good at such great cost, while every other navy but our own, too, seems creeping up to, if not actually ahead of us. This question of monitors would be readily and cheaply as well as satisfactorily disposed of, in a brief while, by just at once doing what should have been done long since,—viz., build a monitor for ourselves and put her to such severe and thorough tests as would decide a vexed question without further loss of time, temper, or money. It is very much to be hoped, therefore, that either the outgoing chief secretary or his immediate successor will cut the knot without further manoeuvring from any motive, professional or political, and allow the country to judge for itself of the supposed merits or demerits of the monitor system. Above all, does the present moment seem opportune for the experiment, before we are once again launched into heavy outlay for building large docks and basins for the especial wants of mammoth ships, which we have serious reasons for thinking may ere long disappear wholly from our navy in favour of very much smaller and very much more effective fighting craft?

[We repeat the foregoing from the *Mechanics' Magazine*. Our own remarks on the subject appear in our March number, "Turret Ships at Home and Abroad."]

THE MARIANAS ISLANDS.—*The Caroline Islanders.*

(Continued from p. 213.)

I will now proceed to relate an adventure which I had when standing across the group of the Marianas islands.

Having left our anchorage off Sunharon, the hands were on deck, and we were admiring the panorama which lay before us. On our right was the enormous promontory of Point Lalo, the southern point of Isle Tinian; on our left, a wild precipitous rocky shore, full of clefts and fissures, forming huge deep caverns, from which the broken surf resounded as we passed them, although the sea about the ship seemed smooth and calm. Before us lay extended a burning sand, which with the sea reflected the sun's rays unpleasantly to our eyes and nearly blinded us. But we could distinguish two or three small white houses upon it of a humble appearance, and before them was flying a kind of flag (for no town of the Marianas has a national flag), composed of two torn strips of red cloth, from the summit of a bare cocoanut tree, and these streamers seemed to be holding out the

arms of friendship to our colours as we approached them. Behind them were the magnificent trees only found within the tropics, extending over the rocks with a luxuriance not to be surpassed, waving their foliage in the breeze as if to welcome our appearance. To the right of Point Lalo was seen Isle Agrigan, like a dark rock, interrupting the line of the horizon, and dropped as it were from the beautiful blue sky; and beneath us the transparent crystal waters, as clear as those of a running brook, enabled us to distinguish anything on the bottom, although the depth was as much as 15 fathoms; and, to complete the picture, over our heads was the burning sun shining from purest sky, veiled occasionally by a thin white cloud, shedding torrents of light everywhere, and imparting a brilliancy of colour to every object, and lighting them up in a manner that can only be seen within the tropics. It is indeed a splendid sight that is presented to the navigator as he leaves the Roads of Sunharon of the island of Tinian.

As we were contemplating the tiny white houses on the sandy plain before us, and which, notwithstanding their insignificance, are the only domiciles of Tinian, our attention was attracted by a moving object on the plain. Sometimes it appeared like a rock, and at others like the trunk of a tree. Around it there were objects moving from side to side that were evidently persons busy about something; but on applying our glasses, we discovered that the object was a large red canoe, which some men were endeavouring to move to the water. This done and the canoe afloat, her mast was soon up, and on it a wide dark sail was set, and she commenced threading her way among the reefs which lay between our ship and the shore.

This canoe was very different from those which are commonly seen in these seas. She was entirely new to us, and of a very curious form. In the first place, her size was far beyond that to which we had been long accustomed; she appeared to carry a kind of house, or rather a cage, on large wooden outriggers from her side; and lastly, a large sail of matting, nearly triangular and stained red, gave her altogether a most remarkable appearance. She had no resemblance whatever to those seen among the Philippine Islands, nor those on the coast of China, seldom indeed as they are seen there. On her head being directed towards us, we could perceive that the hull was very narrow and little varying in breadth ahead or astern, and that she carried two outriggers, one from each side. On one was the cage above mentioned, and on the other a huge trunk of a tree, which served as a counterpoise to it. She sailed perfectly upright, without heeling over at all, although there was a tolerably fresh breeze, and neither the cage nor the trunk of tree touched the water. She proved to be a canoe of the Caroline Islands.

When she came alongside, I was at breakfast with some persons in my cabin, among whom was the governor of the Marianas. The canoe could not get close alongside in consequence of her outriggers containing the cage and its counterpoise, which kept her off the ship's side, and it was necessary to send a boat to receive from her the alcalde of

Tinian (the principal of the few Indians who were there), that he might present himself on board.

I had heard so many extraordinary accounts of the Caroline islanders, that in my desire to see them, several having come on board with the *alcalde*, I desired the chief of them to be brought down to the cabin. He descended the ladder slowly, and stood at the cabin-door in a vesture similar to that which our common parent Adam passed in the beautiful garden of Eden; that is, about as naked as when he came into the world. He was tall and stout, with an expressive cast of countenance, rapid in movement, and his oil-coloured skin shone as if it had been polished for the occasion, like burnished metal. There he stood the simple Indian, like one of the original creation, a native of the place such as were found by Columbus and Magellan, a person rarely seen in these days. He was, in fact, the first savage, properly so called, whom I had seen in the course of my voyages, which were tolerably extensive.

Being delighted to see him and knowing him now, I placed a chair by my side, and invited him to sit down. The Indian came forward readily, looked at me with most inquiring eyes, and sat down on the edge of the chair; but no doubt he did not like such a seat, for he very soon slipped off it, and quietly sat crouched up on the carpet. The symmetry of the man would not only have been envied by the robust and well formed of our day, but even by Hercules himself. The display of muscle was enormous; his whole frame was magnificently formed; and he was, in fact, a handsome model of the old school. He must have been well advanced in years, for his beard was nearly white; but his broad chest, his arms nearly as thick as an ordinary man's thigh, his great stature, his erect body, his quick and penetrating eye, and the rapidity of all his movements, showed that the weight of years was light, and that he was still in the plenitude of strength and vigour. His black thick hair, as strong as that of a horse's mane, contrasted well with his white beard; his skin, anointed with oil and broiled by the sun, seemed to be as tough as a bull's hide: his hard hands and large feet showed that he was used to hard labour; and the whole appearance of the man displayed vigour and robustness of no ordinary kind.

In his ears he wore some enormous stones from the beach, which sounded like bells every time he moved his head, and their weight had stretched the lower part of the ear so much as to make them twice the size that Nature had made them. A narrow girdle went round his middle, and another similar to it about an inch wide descended from it, and passing between his legs met the former behind, thus completing the dress of this veritable descendant of Adam. It may be said with much truth that this covering covered nothing; and the man walked about with as little embarrassment and with as much self-possession and dignity as any Roman senator would have done in his flowing robes.

We gave him a glass of wine, which he made but a mouthful of, and being unable to communicate anything but by signs, he very readily

partook of anything we offered to him. But the governor pointed out a dish which would exactly suit his taste, and this consisted of rice and curried fowl, which the servant placed by him. This was not to be resisted. The Caroline islander took the dish, placed it on the floor, and eyeing the cover, thrust both his hands into the mass of rice and set to work devouring it with immense satisfaction. I confess that it was delicious to me to look at him; for I almost believed myself to be along with Columbus.

Soon afterwards two other Caroline islanders took up their stations at the door, and sat looking at us with much curiosity. We soon made them come in, and seat themselves on the floor. The dish of rice was passed from one to the other, and all of them partook of it with evident satisfaction, but without any noisy gestures; on the contrary, they avoided everything of the kind, and seemed to try if they could pass themselves off as models of propriety.

The last arrived were much younger than the first, but as robust and as strong as he. They were dressed like him; that is, with the ear ornaments and the waistbands about an inch broad. One of them had his hair tied up over his head, and was moreover adorned with a collar and bracelets of small stones of divers colours. Both of them had various devices painted on the arms and legs; ornaments of which the first had none whatever, although he was the coxswain of the vessel.

The magistrate of Tinian seemed to understand their language, and served as a very good interpreter. It appeared that they came from the island called Elato, of the Carolinas; and the *Narvaez* was the first European ship they had seen. Their object was to trade with other Caroline islanders established at Saypan, and they had touched at Tinian for provisions and water, the want of which had obliged them to have recourse to cocoanuts and plantains.

I gave them cigars, which they immediately stuck in their ears. Some coin and other little things given to them were disposed of in the same manner: so that it seems that the ears are, in fact, the pockets of the Caroline islanders.

The breakfast finished, I wished to show them the vessel. Their canoe was secured on the starboard side, lying off with two other Indians in her. One of them, seated in the bow of her under the burning sun, was looking at the ship with astonishment, and I made signs for him to come on board by our boat between his canoe and the ship. He commenced hauling on her rope, as I had pointed to him, but he made shorter work by slipping down into the water, and literally walking to the ship, for swimming seemed to him unnecessary; and he jumped on board apparently without any particular exertion, and stepped out on deck as if he had done nothing extraordinary in giving us a proof of powers which no seaman ever possessed.

In the canoe which lay alongside of us, and which was about thirty or thirty-two feet long and scarcely a yard and a half wide, these islanders had made a voyage of 150 leagues, shaping their course by the sun and the direction of the wind, and at night ascertaining by a

canoe filled with water if certain stars which they knew were in their zenith; thus braving the fury of the sea and the storms of the ocean. The steersman sits abaft, directing with his foot a kind of rudder and holding the sheet of his sail. This is never made fast; in fact, there is nothing in the canoe to which it could be secured, but it is always held by hand during the whole voyage. When the canoe is capsized—a circumstance which commonly happens—of course the people are thrown out of her; but the kind of cage on the outriggers keeps afloat, for it is not fastened to the canoe, but is entirely free, containing the provisions for the voyage. The crew thus thrown into the water swim easily, right their barque again with the utmost facility—a feat which any good Caroline islander can do alone, recover their cage of provisions, and continue their voyage as if nothing had happened.

Such is the general character of the Caroline natives, as bold mariners as any that are to be found on the face of the globe.

After showing them the ship in all parts, in which they took the utmost interest, and being almost beside themselves before our cabin mirrors, I left them to find their way among the crew and went ashore. Our people gave them presents in plenty, with that open good-nature so common to sailors; in fact, clothed all of them like themselves. On returning on board, I was informed that as soon as they had satisfied themselves by seeing everything they took their leave with the most grateful acknowledgments. They took off the trousers and shirts given to them, each of them made a bundle of his stock, and jumped overboard from the steps of the side and reached their canoe without them.

The same evening we sailed from Tinian and arrived at the island of Saypan,—an island, which had been without a resident since the conquest,—we now found inhabited.

It is now about twenty years ago that several of the Caroline islanders landed at Agaña, stating that their native island had sunk in the sea; that a great many of their companions had been drowned in consequence; and that they themselves, having taken refuge in the tops of the trees, had taken to their canoes, and were then in search of an island on which to live. The Caroline Islands are particularly low and flat, excepting Ilap, as may be seen by the account of the voyage of the Russian Admiral Kruzenstern, who visited all of them, and it is very possible that even this was overwhelmed in a hurricane. These natives had come seeking for land on which they might dwell, and they were sent to Saypan, where they became established. At first they lived in the caves of the island, but the natives having instructed them how to build huts, they formed a town on the western side of the island, which town bears the name of Garapan, and I was very desirous to see it.

Accordingly we dropped our anchor off this place shortly before dark, and set out for the landing-place. It was my intention to sail again at daylight in the morning, to continue my voyage to the northward in the archipelago, and to touch here on my return. I was accompanied to the shore by the governor and the vicar of the islands:

the latter of whom intended to remain on the island until I returned. The islanders being informed that the governor and his friend were coming with me to the island, received us with lights and ceremony. The usual stillness of the island was broken by the sound of a wretched bell, which had been left them by some whaler, and was fixed at the top of a kind of tower formed of cane and planks, and the lights proceeded from some fires lighted on the beach.

At the time of our visit there were 424 inhabitants in Garapan, all Caroline islanders, and nine natives. One of these bore the title of magistrate, and was therefore the representative of its government. Their duties are as easy and simple as the Caroline people are gentle and docile. They have great respect for the ancient people of the islands, who are really in authority; for they settle all disputes, and from their decision there is no appeal. Whenever any uncommon difference occurs, the oldest of these meet together, talk over the affair dispassionately, and give the result of their deliberations. They look on the shedding of human blood with horror, and since Garapan has been in existence there has not occurred the slightest outrage. Docile and anxious to learn, active and intelligent, they know the advantages of social life, and accept the instruction of the native Indian, who stands in the light of governor to them and who is a great man among them. The consequence is that a large part of the island is cleared, and all that is worthy of it is well cultivated; and that Garapan, under the direction of a Chamorro Indian, can boast a cleanliness, symmetry, and order, that will be sought in vain among even the most important of the Philippine Islands, and next to Agaña is the most important and best-looking place of the whole of the Marianas Islands.

On our arrival at Garapan we were received on the beach by the principal people of the town. They of course consist of those who have clothes to wear. There were *vivas* and shouting; the bell was made to double its vibrations; the fires received a large accession of dry fuel, which extended their lurid glare and lighted the locality to a greater distance; and after the customary salutations (which among the Caroline islanders consist in rubbing noses by actual contact of each, in spite of their having been taught the European fashion of shaking hands, for they extend the neck as if asking for a rub of the nose), they lighted large torches made of weeds, and we walked on in procession towards the town.

Our procession was new and interesting from the strange figures by which it was formed. It was formed in two files, and between them were the poor creatures who showed so much joy at our visit, with laughter on their faces while their whole appearance belied the expression. Their clothes from their condition they were evidently ashamed of. We knew that custom made these familiar to them in the absence of anything in the way of fashion. One wore a large shirt over a pair of pantaloons with the honours of service, which nearly trailed part on the ground; another had on a great coat and old pantaloons of coarse cloth, left him no doubt by the mate of some whaler, which were not a little the worse for wear; another had covered himself as well as he could

with a sailor's old flannel shirt, and with no other covering for his person marched majestically before us; another had nothing but a flimsy shirt, and walked with an important air, carrying his torch in his hand; another had no shirt, but a pair of scant pantaloons reaching half down his legs: but they were all persons of importance, however scanty their habiliments.

I must in truth say that several of them were dressed in the style of the Chamorros and Philippine Indians,—that is, with pantaloons and white shirts; the latter with the shirt tails flowing, or over all. Over these strange garments, like flags waving in the air, the alcalde wore a frock; so that he was attired in white pantaloons, a shirt over them outside, a frock of black cloth, a hat with an enormous rim, and his cane of office in hand. He was, besides, the only one who wore shoes of the whole procession; and truth compels me to add that, besides his being a Chamorro Indian of illustrious descent, and had even been in London, as he was very careful to let me know, his dress was by no means according to his taste. Some days afterwards, having him with me in a boat of the *Narvaez*, that he might show me the port of Tanapag, near our anchorage, he deliberately took it all off, saying it was uncomfortable, and honestly confessed that he was not accustomed to be laced up that way.

I had a great desire to meet with some of those daring Indians who so commonly make the voyage to the Caroline Islands, and the governor sent for one of them named Arrumiat, who is famed among them as a navigator. He soon appeared, but as naked as he was born; for he had no clothes whatever saving the usual waistband about an inch wide, and joined our party without giving himself the least concern about his deficiency of dress. Perhaps he felt compassion for the other poor fellows, who, on their part again, were glad to see that Arrumiat was no more dressed than themselves. He walked by the side of the governor during the whole procession, keeping step with us, with head erect, the body stooping, without scarcely noticing any question put to him, and looking neither to right nor left until we had reached the village.

The Caroline islanders are generally tall, so that it was somewhat extraordinary to see in Arrumiat a man of low stature, although like the rest of them strong and muscular. He wore no ornament whatever excepting the stones in his ears; and there were no kind of figures on his skin. His long hair, most carefully cleaned, fell luxuriantly over his shoulders; and, notwithstanding the almost entire nudity of his person, his movements were even graceful and remarkable for decorum, and he conducted himself with an air of gravity and dignity, the result of self-confidence and habit of command.

As above observed, Arrumiat was the most celebrated of the Caroline pilots, and was really well deserving of his reputation. He knew the stars, and could describe their groups. He knew that the pole star was always in the same place, while the others were continually moving round the sky; that the belt of Orion always rose and set in

the same parts of the horizon; that the planets were wandering stars, different from the rest, which remained the same in their relative positions. By the rising and setting of Orion he knew the East and West points of the horizon, and the North by the pole star; in fact, he had a knowledge of astronomy that was an extraordinary trait for a mere Indian. He knew the positions of all the Caroline Islands and part of the Marianas, from Guam to Saypan; and would place them on the table by beans, representing them in their true relative positions excepting in actual relative distance. He was acquainted with our mariner's compass, but he disdained its use among the Caroline Islands as of no service; all of which he would tell me he had in his head, and certainly among them he seemed to be quite independent of the compass.

I could not prevail on Arrumiat to come with me in the ship to the northward among the Marianas, although I promised to leave him at Garapan on my return. Perhaps he might have doubted if he did that he should ever see the Caroline Islands again. I therefore took leave of him with regret, promising to myself that I would see more of this extraordinary people on my return,—a people who wear no clothes, study cosmography, and navigate the ocean in craft to which I confess that I should be very loth to trust myself.

The vicar of the Marianas remained at Garapan; and at daylight on the following morning I continued my voyage among the islands.

A week afterwards we again anchored off Garapan, and lay there for thirty-six hours, both to give some rest to the crew and for the purpose of obtaining observations, as well as to see the Caroline Indians.

We were received without ceremony and quite as if we were at home, the people in their ordinary dress,—that is, both male and female as naked as Adam and Eve.

The Caroline islanders have scarcely any notion of Christianity. A priest some years back was sent to Garapan to give some religious instruction, but it does not seem that he succeeded with these people—his moderate salary 30 dollars the month—and it was found necessary to recall him some short time afterwards. The consequence is that the Carolinians live in our islands as well as their own. Polygamy is allowed, and the men have as many wives as they can maintain. The pilot (I must not call him patron) of the vessel which I fell in with at Sunharon, and who was at Garapan on this occasion, had two legitimate wives. He had left one at home, and the other, who was very young, was with him. They have an idea of the Deity, and even know something about a Trinity. *Alutap* is the first person of their Trinity, seated on an elevated throne; *Lungalen*, the son of *Alutap*, gives abundance or causes a scarcity of food; and *Olofat*, the son of *Lungalen*, assumes the form of a dove or that of any animal he pleases. One can hardly suppose that this is really meant for our Trinity, taught them in 1543 by the companions of Ruy Lopez de Villalobos, the discoverer of the Caroline Islands, and preserved in this condition

at the present day, somewhat modified in passing from mouth to mouth of these untutored savages, who have no idea beyond that of their wants.

In spite of the neglect in which the Caroline islanders have been left, they show the effects of our customs, carried there by the few Chamorros Indians who live among them. There are some of these islanders at Garapan who comprehended the sanctity of the married state and the advantages of a domestic life. These, who to say the truth are very few, have only one wife, who knows and observes the principle that she has but one husband. Gentle and docile, they have submitted to baptism and to be married by the vicar padre, who, during the time he was among them, when the *Narvaez* was in the North part of the group, administered it among them. But he returned to Agaña with the *Narvaez*, and the Carolinians remained alone at Garapan. But neither the baptizings nor the marriages will go for anything while they are left without a tolerant missionary, who would instruct them little by little, leading them gradually to a civilised life, the road of which, however, is full of thorns to the feet of the untutored Indian.

The women use the same dress as the men—that is, collars, &c., of small stones—with the addition of a piece of cloth, which is tied round the hips, that is made by themselves. However, some of them dispense even with this apparel, and move about as their mother Eve did before the fall.

The governor of the Marianas, in his solicitude for the Carolinians, has established a school for boys and another for girls at Garapan, under the management of one of the Chamorros Indians, who was sent there from Agana. I must confess that tears filled my eyes on seeing these poor creatures writing the language of Cervantes, not on paper nor with pens—for there are no such things in Garapan—but with a piece of cane on the capacious plantain leaf, and to hear their answers to my questions, and serving as interpreters for their parents, who did not understand a word of what I said to them.

The people at Garapan have a kind of building yard, in which I saw two vessels building and several others careening. Here, in fact, the pilots collect together, and there is a school for the young sailor. The *aspirantes* who are intended for navigating a vessel have to undergo a regular examination before a meeting of pilots, without whose approval they are not allowed to go on any important voyage to sea.

They make line from the fibres of a tree, which I believe is the cocconut, which is first twisted into yarn and then united into cord. They fasten three of these cords to a high point over them, each one of them is taken by a man, and they all twist them till they form a cable so perfectly that no one would suspect how it is done unless he saw it, but would imagine it was made with the most perfect European machinery. I have seen cables made in this manner 100 fathoms long, each strand being 4 to 5 inches round.

They do not use anchors. When it is necessary for a vessel to do so, one of the crew jumps overboard with the end of the cable in

his hand and secures it to a boulder at the bottom. The trouble of lifting the anchor is done away with quite as simply: the Carolinian jumps overboard and tracks the cable to the bottom and loosens it from the boulder or piece of coral round which it is secured without troubling himself about the depth it is in, nor even about the shark which may be prowling about not far from him; in fact, they are capital sailors, and both ingenious and daring.

The vessels at the yard building are about 30 feet in keel, 4 feet in beam, and $6\frac{1}{2}$ to 7 feet deep from the deck to the keel, and draught of water, the same fore and aft, $2\frac{1}{2}$ feet. The stem and the sternpost rake equally, and the bow and the stern are similar in form. There is not a single nail used in building these craft; the pieces of wood are sewn together with thin but exceedingly strong twine, the holes filled afterwards with a kind of putty. The planks of the frame are less than half an inch thick, and no ribs are used. The whole work is consolidated and strengthened by a strong gunwale of considerable size, and these are connected with each other by thwarts for seats, which are all on the same level. The two sides are not similar in form, one being finer than the other. The vessels are, in fact, stem and stern alike, and never go through the process of tacking or wearing. The side which is intended to be to windward is fuller or more rounded than that to leeward, nearly in the proportion of three to five, and on this weatherside is the outrigger, (or, as they are called in the Philippine Islands, the "batangas,") which is a stout trunk of a tree, which is placed parallel to the keel, carrying at the end two cross pieces, which extend from eight to ten feet outside the vessel. On the lee side also there is a platform outside the gunwale, formed of long poles, on which is placed a kind of box of cane, much resembling a large pannier, in which are stowed provisions, cargo, and even passengers. The crew are generally huddled together in the bottom of the vessel. The mast, which is generally from 22 to 24 feet long, is not placed on the keel, but on the weather gunwale. It is kept in its position by stays, which allow of its being inclined according to the strength of the wind. The sail, of very fine matting and nearly triangular, is spread by two bamboo canes, and is managed by lines from each corner, serving as halyards, tack, and sheet. The rudder is not abaft but on the lee side, and is in the form of a paddle, which, besides directing the vessel's course, serves also (say the Carolinians) to keep her upright, in which consists the art of the helmsman, and which certainly requires no small skill. I have not been able to find out what use this said rudder contributes to the stability of the craft, but the Carolinians say that it is of service, and we must believe them. It is not improbable that their plan is to luff up into the wind on its freshening up, so that the lateral pressure on the sail may be thereby reduced; but at any rate much experience is necessary, and, above all, the greatest possible care to prevent the vessel from capsizing or taking in water over her lee gunwale.

These craft carry from ten to twelve persons, and sometimes more, who stow themselves away as they can in the body of them. They

fill the basket with cocoanuts, and if they ever have a passenger who is not a Carolinian he is also placed in the basket. They cast off their moorings, set their sail, and put to sea. There is nothing to fasten the sheet to, as we have already observed: this is held by the helmsman during the whole voyage, both day and night, let it be as long as it will. Some helmsmen take care to have an assistant if the voyage is likely to be long. If he should let go the sheet and the craft capsize, the crew take to swimming, like the basket with the provisions. The helmsman rights the vessel,—a performance which he manages without any assistance, although I never could make out how he does it; but certainly, the balancing weight being loosened to windward, the craft would right herself or with very little assistance, owing to its form. But once righted the crew get on board again, then pick up their basket, and continue the voyage.

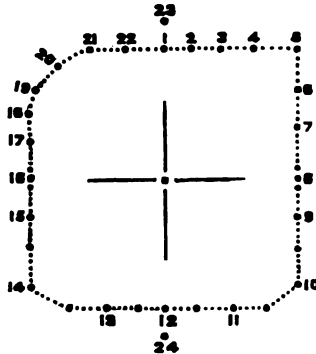
In this way they navigate the wide Pacific Ocean far away from any land. They shape their course by the sun, the stars, the direction of the wind, or that of the waves. If the weather inclines to be foul, the sky becoming cloudy and continuing so for some days, they lay by for the coming storm, and when over the helmsmen tell me that three days are necessary to get to the eastward what they have lost. Then they have recourse to their observations: they fill a cane with water and observe the stars in the zenith, and thence study the position of the vessel. This ascertained gives them their course, and they prosecute their voyage.

All this is very extraordinary; but I cannot help thinking that a great many of these craft are lost. The names which they give to the points of the compass which they use, according to the statement of a collection of pilots which I assembled, and which was presided over by Arrumiat, will be seen as follows.

A figure similar to this was made with beans on the table of my cabin, and copied by me on paper. The names of the several points were written by me as they sounded in my ears after repeating them several times. I thought that I might have made a wrong figure for the placing of the points, and I corrected it to a more perfect quadrant, but it was not allowed by them, and the figure as it had been was approved. Repeatedly on rounding the corners of the rectangular figure, I was obliged to leave them as they were, and therefore it must be taken as it is.

They divide the horizon into four quarters, or rather perhaps into two semicircles,—the Eastern and Western. *Ueleuel* is the name of the pole star, and *Mailab* that of the belt of Orion. The three points with which they represent East and West, they all called *Mailab* and *Tubule Mailab*. Not one of the three has a special proper name; but the name they have is conjunctive. It is worthy of remark that there is no E.b.N. nor W.b.N. In their compass there are points answering to N.b.E., N.E.b.N., and N.E.b.E., but there is no E.b.N., which remains blank. The same occurs in the fourth quadrant, although the points at those angles appear to be the same as our own. Their third quadrant is similar to the fourth, but the second is neither like the

first nor any of the others. Their first quadrant is divided into eight parts, for *Tagale mol* corresponds to N.E.; but of these eight seven only are marked and have names. The others are not similarly divided, but are as represented in the figure. I never could find a reason for this singularity.



Compass Points of the Caroline Islanders.

- | | |
|-----------------------------|-----------------------------|
| 1. Mai lab Ueleuel. | 13. Tubule liup. |
| 2. Tagale mailles pelevant. | 14. Tubule lumur. |
| 3. Tagale olego. | 15. Tubule eliel. |
| 4. Tagale iguelie. | 16. Tubule mailab. |
| 5. Tagale mol. | 17. Tubule ul. |
| 6. Tagale magariguec. | 18. Tubule magariguec. |
| 7. Tagale ul. | 19. Tubule mol. |
| 8. Maitab. | 20. Tubule iguelie. |
| 9. Tagale eliel. | 21. Tubule olego. |
| 10. Tagale lumur. | 22. Tubule mailab pelevant. |
| 11. Tagale liup. | 23. Ueleuel. |
| 12. Mailab delub. | 24. Olelup. |

The points 23 and 24 are North and South.

The names absent from some of the points in the lower part of the figure were trusted to memory and were not written. There was some analogy between them and the Northern points, which has escaped my memory.

We passed the 14th of February at Garapan among the good Carolinians, who, by way of taking leave of us, gave us a ball in their own native fashion.

As the evening came on all the people of the village cleanly dressed, or rather attired in gala style, came gathering in the square containing the alcalde's residence, which had been assigned for the use of the Europeans. All of the natives had painted their persons with a kind of yellow ochre mixed with coconut oil, and reflected in the rays of the setting sun as if they were bronzed. Their head-dresses were got up with great care and very elaborately, their long hair being dressed in a crest-like form; others wore it short and curly, and saturated

with oil; some had feathers, and others horns of animals on their heads. All the men carried a staff of six or seven feet long with small flat pieces of wood at one end of them, something like what are used for hanging out clothes.

At the commencement of the proceedings there was not a solitary woman present. The men, being divided into two parties, walked about performing various evolutions to a monotonous song, although by no means unpleasant, to which they beat time with their staves. They then joined, forming two columns, and commenced their dance, which consisted of a series of jumping and figures, keeping up the time by knocking their staves against each other. These they managed with great dexterity, striking one end and then the other against those next to them, at the same time changing hands and turning each other and forming themselves into groups with good effect. The performance was on the whole very pleasing, and certainly would have been well worthy the attention of the purveyors of our theatres.

It was a war dance they had performed, and the song accompanying it was a narrative of the glorious feats of the Carolinian race, in which they celebrated the bold adventures of their ancestors, their daring voyages, and their important exploits.

While the men were singing and dancing the women were making their appearance in the square by ones and twos from opposite sides of it, and formed themselves in groups. This gave fresh vigour to the performances: the singing was bolder, the dance more vigorous, and even the figures which they performed were more complicated.

Like the men, they were also painted yellow, covered with armlets and collars of small stones, with the hair loose over the shoulders. They were all naked, although some had the cloth waistband descending to the knees, and others had ornamented this excuse for a dress with leaves of the palm. These were the youngest, and certainly their ornaments could not be more fantastical. One among them (and they were above a hundred) came dressed *a la* European, with an old gown of a dirty dark colour, the origin of which might be easily guessed, without any interior linen whatever, the waistband loose and no fastening, drawing after her on the ground half of her garment, without shoes or stockings, and with an old chocolate-coloured hat, such as are worn with green veils by the English, and this veil flying adrift, rendered her the oddest appearance I ever saw. Fortunately the other poor creatures were merely naked, and at least were only to be seen.

Collected in two groups in the middle of the square, each group sang alternately. One of each group led the song and the rest formed the chorus; one party having sung, the other took it up. They were really singing, but it seemed as if their songs were each addressed to the other party; and, in fact, they were so. With the view of encouraging the men in their dances, these ladies had raised a discussion between them on the question which party of the men had the most handsome among them. The effect was capital; for the dance, which

had already lasted an hour, instead of languishing, was kept up with redoubled vigour.

But suddenly the gaieties took an unexpected turn. The ladies had been gradually nearing each other, and when well apart appeared to be working themselves up to it. To our astonishment we saw them rush at each other like furies, and commence biting and scratching. This was too much, and the interference of the men, whether Carolinian or European, became necessary. I had given permission for a good many of my men to be on shore, and to see the sailors separating the Indian women was the best of the joke. At length by powerful means order was restored, the Carolinians having managed to secure their wives and shut them up in their houses.

Then came the explanations. As the affair of the ladies was open to all kinds of remark in passing from mouth to mouth, it appeared that one of the groups of them resented the observations of the other in finding fault with their ornaments, calling them ugly, and made remarks on their intercourse with the crews of whalers. What was said was received with laughter, but words ensued and the quarrel also.

It was amusing, however, to receive the excuses of the good Carolinians for the accident, and saying that they never could depend on any good from women.

Such was the conclusion of the famous ball, which would leave a lasting impression at Garapan, as it was given in honour of the arrival of the governor in the Spanish frigate.

It may not be out of place to observe here that the *Narvaez* is the first steamship seen by the natives of Garapan. When she appeared on the horizon in the midst of the haze of the evening, with her sails furled and her funnel throwing out a large column of smoke, the vessel going swiftly against the wind, she was looked on as an apparition by the natives collected on the beach. I have not mentioned that it was necessary for the alcalde, who had made a voyage in a whaler, to come and explain to them that what they saw was in reality a ship; for they had determined to take themselves to the interior of the island as soon as the *Narvaez* dropped her anchor off the coast.

The governor, after the ball, gave an invitation to all the people of Garapan in the square in which we lodged; and at a late hour of the night we took our leave of the good Carolinians, who carried us in their strong arms to our boats, ready on the strand, and, launching their own, accompanied us to the ship. There were extra lights, similar to those on our arrival; but the humble bell above mentioned did not repeat its notes of welcome. Other sounds of a more gratifying nature took place instead; and these were the repeated exclamations of the people in wishing us a happy voyage and a speedy return to their island.

(To be continued.)

FROM PEKIN TO CHEFOO,—*By River and Canal.*

The following letter from Mr. Alexander Williamson, of Chefoo, that we find in the *Times*, is a useful pioneering view of the resources of the northern ports of China, principally about the great Yellow River, which opens out a considerable district where British enterprise, followed by trade, will pursue its steps shortly, entering on new ground by the important port of Chefoo,—in a more temperate latitude than the gulf of Pechili.

“I venture to send you a few notes of a journey I have just completed from Pekin to this port, *via* the Grand Canal, Lin-tsing-chow, or Lin-tsing, Toong-chang-foo, Yen-chow-foo, the cities and country of Confucius and Mencius, Wei-heim, Lai-chow-foo, and Whang-hien. I send these the more readily, inasmuch as considerable doubt rests upon the navigation of the Grand Canal and the position, of course, of the Yellow River; and also, as constant inquiries are being made as to the practicability of using these two great water roads—as the Chinese call them—with the view of increasing our commerce with this country; and I indulge the hope that it will interest not a few of your readers to know that I can give a favourable report, especially of the latter.

“Our route being, as far as I know, in a great measure untrodden by any European of this generation, and lying straight through the heart of ancient China, we are strongly tempted to diverge into historical notices; but I shall leave these for another place, and endeavour to confine myself to matters of general interest.

“We left Pekin in carts on the 8th of October, and proceeded to Tungchow, the usual starting point on the Grand Canal, and here we found a boat ready to take us as far as Lin-tsing-chow, or Lin-tsing as it is spelt in the maps, lat. $37^{\circ} 4' N.$, and long. $115^{\circ} 52' E.$, the juncture of the Grand Canal with that other canal called the Wei-ho or Shang ho, which leads to Honan and southwards.

“Two days having brought us to Tien-tsin, and here having taken in some provisions and other necessaries, we set out alone, in company with a Chinese scholar and native servant. The first day we did not make very rapid progress, and soon found that we could not travel much faster than about one hundred li, or thirty English miles per diem. We found the canal in excellent repair as far as Lin-tsing-chow, with the exception of a place near Pan-tow, where the water became shallower, and the banks out of order, though it was still navigable. We fathomed the canal on a great many occasions, and found generally from 6 feet to 8 feet and 10 feet of water, and its width was from 80 feet to 100 feet. As we entered more into the heart of the country, we found the canal winding in a most tantalizing way, sometimes taking us about half a day to reach a place we could have walked to in an hour. This, of course, clearly showed that this part had formerly been the bed of a river, as we know that all natural advantages were employed in its construction. But it could not have been a river

throughout, for the canal was in several places above the level of the country, and its banks beautifully sloped, and formed of the mud taken from the bed, and so manifestly proved that it was a great work of human genius.

"There was not nearly so much trade upon the canal as we expected. Nothing like the traffic that used to be on the canals about Shanghai, Soochow, and Hangchow in former years. Still, it was considerable, and we met great numbers of junks and boats from far distant places in Honan. The towns and cities on its banks were also less flourishing than we anticipated. Several Hiens—cities of the third class—were in a most deplorable tumble-down condition. The only cities of any importance on the canal to Lin-tsing-chow are Tsan-chow and Tuh-chow, spelt Ti-chow on the Admiralty map. The former encloses a large space of ground, but there does not appear to be extensive business carried on. The latter, which is on the highway from Peking to the South, is an important city. The eastern suburbs are very extensive, and a large trade is carried on in all kinds of wares. Passing Tuh-chow, we came to a large and most flourishing town called Chung Kia Kow. The size and importance of this place quite took us by surprise. We found a great business and extensive warehouses, the trade consisting chiefly of cotton wool, cotton cloth, felt, silks, mouthpieces of pipes, great shopfuls of them, &c. Here also we saw camels resting in an inn, indicating trade with the North-west. This town is not on the map, but is about 150 li from Tuh-chow. The people all along the banks appeared much poorer and less refined than South of Yang-tse-Kiang. The country people had much more of the boorish clodhopper aspect than their southern countrymen, and the inhabitants of the towns and cities partook of the same appearance—only that remove above their country cousins which their town life and business habits imparted. The shops were painfully uniform—the same shape of counters, same kind of furniture, and the same things in stock, and, let me add, the same multitude of salesmen—brothers and cousins—loitering behind the counter, with their hands in their sleeves, or playing at dice.

"But the sameness did not end here. The people everywhere had the same appearance, and were at the same employments. All along we found them in the fields hoeing with the same kind of hoe, ploughing with that ancient stump of a plough which they carry home on their shoulders when the work is done, or irrigating their fields in the same manner; in early morning crowding the banks drawing water for their daily use, and in the evening leading their cattle down to drink. There was no diversity, no tall chimneys to break the monotony; no cotton mills; no print or bleach works; nor even flour-mills to interest the mind, but painful uniformity. There was only one source of amusement for us, and that was rich enough. We refer to the motley group of beasts bound in the yoke together. Sometimes we saw a horse, donkey, and cow in one plough, and sometimes yet more ridiculous mixtures, just as if the whole household, man and beast, even including dogs, had turned out to drag the plough. Yoked in their large heavy carts it

was quite common to see a poor bullock in the shafts, and a herd of small donkeys with a cow or an old worn out horse among them in front helping to drag the vehicle along.

"The houses were all alike, all built of brick, chiefly of mud brick unburnt. They were also plastered over with straw in its native colour, so that the hamlets, towns, and cities in this district had a dreary forlorn aspect, the colour being like that of the soil, human mud tenements. Though no quarries, they might have made decent burnt bricks. Everywhere we met with Mahomedans. They often saluted us from the banks and often in the streets of the cities with the cry 'Mussulman,' and claimed kindred with us. They sometimes called upon us and said that they believed in the same God, and were not like those stupid idolaters among whom they lived. They appear much less bigoted than their brethren in India; and, on inquiry, we found that they had little or no connexion now with the West. In former times pilgrims used to go to Mecca, and in this way kept alive the spark of intolerance; but for many years I could hear of no one having undertaken the journey. We found numerous mosques; sometimes three and four in one city.

"The scenery all along the banks from the capital onwards to Lin-tsing-chow was extremely uninteresting. It was one extended carse—swampy now and then, but for the most part excellent rich soil. Not a hill relieved the landscape. Few trees. Day by day the same boundless expanse of winter wheat, in drills, indicating an abundant promise of food for the supplies of the people; but it palled upon our taste, and we longed for hills to break the dreary green level. Patches of the tobacco plant were everywhere met with, and as we neared a village or city fine vegetable gardens were found close to the canal, full of those grand Shangtung cabbages, carrots, turnips red and white-topped, thick-necked onions, and a variety of other plants. Rows of the castor-oil plant, I may say, almost covered both banks from near Tien-tsin onwards to Lin-tsing-chow.

"Travelling over the district, there is another thing which cannot fail to strike one, and which may be also noted down—we mean the absence of game and living creatures. We did not see a hare or a pheasant or any kind of game all the time we were on the canal, very few wild ducks, and still fewer wild geese. Of course we could hardly expect to see them on the banks; but even in our walks and in the markets we failed to discover them. Crows even were scarce; magpies were the only birds that appeared to flourish—thanks to superstition. Pigeons, wild, or rather belonging to temples, were also now and then to be met with. There were no small birds, no singing birds; of course, there was no brushwood for them. There was a good proportion of horses among the farm animals; some magnificent bullocks,—the finest I ever saw; good cows,—evidently capable of giving plenty of milk; and flocks of sheep in all places, of the same kind as in Peking, with their huge flat tails. Beef and mutton were found exposed for sale in every market; for the Northern Chinese eat beef at this season of the year.

“Arriving at Lin-tsing we found it, too, an extensive market for all kinds of goods. The city had been burnt down by the Taeping rebels several years ago, and had not been rebuilt. It presented a sad sight. The walls, which were nearly intact, enclosed only piles of brick, now covered with weeds, and a few poor buildings where beggars and semi-beggars lived. The inhabitants had rebuilt their houses on the banks of the canal, and formed a large town. The main street had a most animated appearance,—crowded with large shops and warehouses, and nearly two miles long. There are large furrier establishments,—furs said to be from Mongolia. Whenever we got an opportunity we inquired of traders if it was possible to bring goods by means of the Yellow River or any other stream from south-western Mongolia to this city, Lin-tsing-chow, and thus on to Tien-tsin. We received various replies, and putting them all together we believe the truth to be this,—that we can have water conveyance on to about Tai-ming-foo, and that the Yellow River is unsuited for boats beyond that city, so that camels must be had recourse to.

“At this city the canal branches off in two directions. One called the Wei-ho proceeds to Honan. It continues in good repair, and there is a considerable traffic on it. The other, and formerly the principal one, proceeding South to Loochow and Hangchow. Here the famous locks commenced, but they are now all in disorder and the canal all but dry. Accordingly we had to leave our boat and hire carts. The road ran nearly parallel with the canal, and so we had the pain of seeing its dilapidated appearance now and then. We were told that it was useless for between sixty and seventy miles, but, receiving a supply from the Yellow River, it again became navigable, and continued so on to its ancient terminus; and we know this statement to be true.

“Leaving Lin-tsing we proceeded to Tong-chang-foo. This city is a most important one. The trade within the walls is not great, but that in the eastern suburbs is immense. We have seen nothing to compare it to, except the eastern suburbs of Shanghai or the North-street of Tien-tsin. The city is nearly surrounded by water, and has communication with the Grand Canal and the Yellow River.

“We found great fields of cotton growing in the neighbourhood of Lin-tsing, and all along our road to Tong-chang-foo and on to the Yellow River.

“Here at last we arrived at the Yellow River. For some miles the road lay through marshy ground, but recently the bed of a river. At last we caught sight of this river, ‘China’s Sorrow,’ and it in many respects fulfilled our expectations. It winded through the plain like a great wide yellow dragon. At this place its banks were crowded by ferry boats of all sizes, fit to convey almost anything over. There was also a guard of soldiers stationed here. After some bargaining we got our huge cart and ourselves on board a large flat-bottomed boat, and thus were ferried over, but not without difficulty. They first dragged the boat up the stream a good distance, and then let go. Several men at two huge oars tried to row the boat right across, but

the force of the stream was too great. It carried us down a great way, but by-and-by we reached the bank, and were then dragged up to a landing-place. I tried to fathom the river as we crossed. Just after we were let go I found the depth 15 feet; and about the centre of the stream I could not find the ground, owing not to the depth altogether, but to the current and the mud. When I first saw the river—a broad flowing stream with small islets here and there—I imagined it could not be very deep, but having sailed across my views altered. It must be constantly changing in its depth, but the quantity of water is so great that there must be always a deep channel, and if not at the centre, at the sides.

“As I crossed I also tried to estimate the force of the current. It is not nearly so great or so strong as the tide at Shanghai. A gig could scarcely pull against it; and so I suppose it may be set down at about three knots per hour. Of course it varies in its rapidity, and is slower in a level country; but throughout its whole course it has the character of being a rapid river. When crossing we had a good illustration of the manner in which this wilful river forces its way. As it flowed against the banks it just ate them away, and the mud fell into its devouring jaws just like some huge monster browsing grass; and as the banks fell in on one side they were raised on the other. Thus it literally ate its way, and ‘followed the bent of its own sweet will.’ Your readers are aware that it has repeatedly changed its course, and it is one of the great anxieties of the Government to keep it in a fixed channel.

“Looking at the river and walking up the banks, we asked ourselves, Could a steamer stem that current? and we made as many inquiries as we could relative to this from natives, and found their reports favourable. Moreover, this fact has been recently confirmed by actual investigation. Mr. Davis, of Messrs. Ferguson and Co.’s, of Chefoo, sailed down the river from the junction near Tsi-nan-foo, and sounded it all the way to its mouth in the Gulf of Pecheli. He found the channel from 18 feet to 26 feet, and the bar not so formidable as was anticipated. It had 3 feet to 4 feet of water on it at low water, and from 9 feet to 12 feet at high tide. He also tells us that the bar extended about five li, or $1\frac{1}{2}$ mile in length from North to South, and was not very wide. We had heard that the river was deepening and increasing in volume, and these soundings prove the report to be correct; for it will be observed that they are much more favourable than those marked on the Admiralty chart, which was prepared by Captain Ward, R.N., of the *Acteon* a few years ago.

“We made very particular inquiries as to its course and the cities on its banks, and how far it was navigable, and give the information we received, which, I think, can be depended upon. At the ferry there were a good many junks, of the second and third class as to size, moored on their way up the river. We found some were bound to Tsan-chow-foo, lat. $35^{\circ} 25' N.$, long. $115^{\circ} 35' E.$; others to Tsy-kow, and others to Tai-ming-foo. Thus the course of the river appears to be from Tai-ming-foo—lat. $36^{\circ} 28' N.$, long. $115^{\circ} 18' E.$ —nearly due South to Tsan-chow-foo, lat. $35^{\circ} 25' N.$, long. $115^{\circ} 35' E.$, then North-

east to Tong-oh-hien—lat. $36^{\circ} 24' N.$, long. $116^{\circ} 23' E.$ —where it takes possession of the bed of the Ta-tsing-ho River, and through it flows on towards Toong-chang-foo, lat. $36^{\circ} 38' N.$, long. $116^{\circ} 12' E.$, past Tsi-nan-foo, to Tieh-mun-kwan, about lat. $37^{\circ} 35' N.$, long. $118^{\circ} 12' E.$, and thence pours itself into the sea. Thus this river opens a way far into the interior, and to a part of China quite new to us, and rich and populous. We are somewhat dubious as to the truth of the statement that navigation is impossible beyond Tai-ming-foo; but supposing it to be correct, a glance at the map will convince any one of the great importance of this river. The city of Tsi-nan-foo is the capital of Shan-tung, while Tong-chang-foo, T'san-chow-foo, and Tai-ming-foo are little less important than the first in a commercial point of view. Moreover, it will be seen the river crosses the Grand Canal, and also the Wei, or Shang Canal, and other minor water 'roads,' so that by the first the whole of the South-west of Shan-tung and the entire province of Kiang-su is thrown open to us, while by the latter we have easy access to Kai-fung-foo and the whole of Honan and Shan-si.

"In view of these facts I have no doubt this river will not be forgotten at the revisal of the treaty in 1868, and were I asked how it would be best to work this river, I would suggest that, as far as I can judge, the most efficient means would be to make Chefoo the depôt, and have small but powerful screw steamers to run thence, calling at another important seaport at the mouth of the Wei-ho—of which we shall presently speak—thence to Tiehmun Kwan (*i. e.*, the 'Iron Gate Pass'), on the Yellow River, and thence to the cities I have just indicated. This would be only following the plan at present pursued by the Chinese, and they make few mistakes in business matters. A very large proportion of the goods brought by foreign ships and steamers to Chefoo is transhipped on board native junks, and by them carried to the Yellow River. There has been a partial stagnation of trade for the last three months at this port, owing to the fact that the mandarins have enormously increased the dues on junks entering the Yellow River. It is said that junks which used to pay 40 taels are now required to pay 400 taels. The effect on the trade proves the extent of this department of traffic. I find that the mouth of the Yellow River is longer open than the Peiho, and that several portions of the river never freeze, as might be expected.

"There are several important seaports on the North coast of Shan-tung, at which a coasting steamer might call; but perhaps the one best suited for us is that port I have just alluded to, called Hia-zing, lat. $37^{\circ} 10' N.$, long. $119^{\circ} 35' E.$ It lies at the mouth of the Wei-ho, or river, which river is navigable to Shan-hia, and thence by smaller boats forty or fifty li further, in the direction of that busy city, Chu-ching, lat. $36^{\circ} 3' N.$, long. $119^{\circ} 48' E.$ The town of Shan-hia is only about twenty-two miles from Wei-hien, lat. $36^{\circ} 44' N.$, long. $119^{\circ} 12' E.$, the chief distributing city in the district of Shan-tung. Goods could thus be landed here for Wei-hien and Chu-ching, and all the present expense of land carriage from Chefoo saved, which is not a little."

Nautical Notices.

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

PARTICULARS OF LIGHTS RECENTLY ESTABLISHED.

(Continued from page 218.)

Name.	Place.	Position.	F. or E.	Ht. in Feet.	Dist in Mls.	(Remarks, &c. Bearings Magnetic.)
14. Calf Beck, Bantry Bay, North side	Ireland south coast	51° 34' 9" N., 10° 14' 8" W.	Fl.	141	17	Est. June, 1866. Interval between flashes fifteen seconds.
15. Blacksod Quay	Ireland west coast	54° 5' 9" N., 10° 3' 6" W.	F.	37	10	Est. June, 1866. (a.)
16. Tripoli, Ramlins Island	Syria	.....	F.	..	10	Changed from <i>red</i> to <i>white</i>
Sivers Spitt	Bug River	.....	F.	30	6	Est. 1866. During navigation. Showing from N.N.E. $\frac{1}{4}$ E. to S.S.W. $\frac{1}{4}$ W. (b.)
17. Measured mile in Stokes B.	.....	.....	..	..	..	(b.)
18. Fraser River	British Columbia	49° 3' 5" N., 123° 17' 3" W.	..	..	11	Est. recently at the Sand Heads. (c.)
19. Madonna Shoal	Ionian Sea	.....	..	..	..	Buoy. Disappearance. Caution. (d.)

F. Fixed. Fl. Fixed and Flashing. E. Revolving. I. Intermittent. Est. Established.

(a.) 15.—The light shows white when bearing from N.E. round by North and West to S.W.b.W., and *red* between the bearings of S.W.b.W. and S.W. $\frac{1}{4}$ S.

Bearings are magnetic. Variation 27° 5' West in 1866.

(b.) 17.—Notice is hereby given that two red beacon buoys, with staff and ball, have been moored off Stokes Bay, Spithead, for the purpose of indicating the direction of the measured mile for testing the speed of H.M. ships.

The Eastern buoy lies in 13 fathoms water, at half a mile southward of Gilkicker Point.

The Western buoy lies in 10 fathoms, at three quarters of a mile southward of Brown Down batteries, on the shore of Stokes Bay.

These buoys lie N.W. and S.E. from each other, and are a cable's length from each end of the measured mile. As the line of the buoys is not more than 1 $\frac{1}{4}$ cables outside a bank in Stokes Bay, on which there are only 3 $\frac{1}{4}$ and 4 fathoms, at low water springs, vessels of heavy draught should not *turn inwards* or *towards* the shore of the bay.

Bearings are magnetic. Variation 21° 0' West in 1866.

(c.) 18.—She lies in 10 fathoms water, with Garry Point bearing N.b.E. $\frac{1}{4}$ E. easterly, distant 5.2 miles; North Sand Head buoy N.N.W. $\frac{1}{4}$ W. 7 cables; and the South Sand Head buoy E.N.E. 2 cables.

Bearings are magnetic. Variation 22° 35' East in 1866.

(d.) 19.—The buoy on the Madonna Shoal eastward of the island of Paxo, has not been in its position for some time; and the buoy on the extremity of the shoal extending south-eastward from Cape Skala, island of Kephalonia, is either sunk or washed away. The former not having been replaced was the cause of the English yacht *Myth* being seriously damaged and nearly lost by grounding on that shoal.

Mariners are therefore cautioned that when navigating in the vicinity of the shoals which have hitherto been marked by buoys, not to trust to the buoys being in their position.

What are the authorities about?

LIGHTS AND BEACONS FOR NEWCASTLE HARBOUR.

Leading lights and beacons for Newcastle Harbour, North channel, will be exhibited on and after Tuesday, the 1st of May, 1866.

The two fairway lights for entering (red and natural) will be shown from beacons 228 feet apart, in a S.W. $\frac{1}{4}$ S. and N.E. $\frac{1}{4}$ N. direction, erected on a clear space of ground on the hill at the back of the town, between the Wesleyan and Catholic churches.

Those for taking the North channel, also red and natural, will be shown from beacons erected on the breakwater in the vicinity of the old Bull beacons, at a distance of 100 feet apart, in a W.b.N. and E.b.S. direction.

In both cases, when the lights are in line, the natural will be the uppermost, and the red the lowermost, one of the two. In the day time, however, this order of colour will be reversed, as it is intended to paint the upper beacons red and the lower ones white.

The lower or north-eastern of the two obelisks at present used for the leading mark in, situated on Shepherd's Hill, will be removed; so likewise will be the remnant of the Bull beacons on the breakwater.

The exhibition of these leading lights will not necessitate any new sailing directions, but the lights and new beacons are to be substituted for the obelisks and beacons at present in use.

In entering the Port of Newcastle at night great caution will be necessary, in consequence of the strength of the tide, and due allowance will have to be made for ebb or flow, on sighting the North channel lights, and about to alter course from S.W. $\frac{1}{4}$ S. with the fairway lights in one, to W.b.N., the direction which a vessel will have to steer to keep the North channel lights in line, to gain an anchorage in the North harbour.

*Office of Pilots, Lights, and Harbours,
Sydney, 10th February, 1866.*

FIG ISLAND BEACON,—U. S. America, Savannah River, Georgia.

The Lighthouse Board of Washington has given notice that Fig Island Beacon will be re-established on and after 8th of March 1866. The light is a fixed white light, elevated 26 feet above the sea level, and visible in clear weather nine miles. It stands in lat. $32^{\circ} 5' N.$, long. $81^{\circ} 3' 5'' W.$ of Greenwich.

ROCK IN PORT HERRADURA,—South America, West Coast.

Mr. Thomas F. Price, commanding *Pembroke Castle*, has reported a dangerous rock in Port Herradura (de Coquimbo), South America,

West Coast, with only $3\frac{1}{2}$ feet water over it, and 5 fathoms close around it, at low water springs. It lies near the northern shore, with a conspicuous round hill in the N.E. corner of the port N.E.b.E.; and inner eastern point of entrance W. $\frac{1}{2}$ N., distant nearly a cable's length.

The *Pembroke Castle* only just cleared this rock, and the ship *Knowsly* ran on it, staving in her bows. The directions for avoiding it are, do not bring Herradura Point to the southward of W.b.S., nor the south end of the conspicuous round hill to the eastward of N.E.b.E.; but the mariner is cautioned, that till this danger is farther examined, not to come within $1\frac{1}{2}$ cable's length of the inner eastern point of entrance of the port when rounding it.

The bearings are magnetic; variation 15° E. in 1866.

SHOAL NEAR CAPE ST. JOHN,—*Africa, West Coast.*

The following information has been received at the Admiralty relative to a shoal near Cape St. John, northward of the River Gaboon, on which her Majesty's ship *Espoir*, Commander M. S. L. Peile, grounded in December 1865, on a shoal near Cape St. John. It has about 11 feet water on it, N.N.E. $\frac{1}{2}$ E., four miles from Cape St. John, two miles seaward of a small green island, and three miles from the shore. There are 4, 5, and 7 fathoms water N.N.W. of it. Vessels passing the Cape should give the small green island a berth of three or four miles, and keep the lead going.

All bearings are magnetic; variation 20° $10'$ W. in 1866.

SUNKEN ROCK IN POSIETTE BAY,—*Coast of Manchuria.*

Mr. J. West, commander of the British ship *Yedo*, reports having struck on a sunken rock when coming out of Posiette Bay. The following bearings were taken as soon as possible after the vessel struck: the middle of Furugelma Island S., and Cape Gamova E. $\frac{1}{2}$ S. The vessel's draught was 14 feet. There was no discoloured water, nor any indications of a shoal; and it is believed to be a pyramidal rock, as the vessel is only supposed to have struck on her port bilge, and did not stop.

The bearings are magnetic; variation 4° $30'$ W. in 1866.

CAPE FLORIDA.—A notice has just reached us of the fixed light of Cape Florida being re-established on the 15th of April.

THE "NAUTILUS."—Since the article in the former part of this number was in print, we have ourselves been present at an experimental trip down the river in the *Nautilus*. The weather was fine, with a stiff easterly breeze, which in the lower part of the river produced a lively motion, through which she behaved admirably. With the engine not in a very perfect condition she realised nine knots, the

velocity of the water rushing through the tubes on each side showing the effect of the power exerted on it, without the slightest shake or vibration in the vessel. All the advantages were quite evident that have been pointed out in that article.

BOTTLE PAPERS.—*Atlantic.*

It is a long time since we have been enabled to lay before our readers any results of the bottle experiments which have been so long going on in the hands principally of our own navigators. But the two following are interesting; the first as agreeing with some others in establishing a S.E. current or set immediately to the northward and westward of the Azores, and the second as following the usual westerly current southward of the *Rocas*, a district regarding the current of which there has lately been considerable discussion, resulting from the loss of the *Duncan Dunbar*. We have already alluded to the subject of this wreck in our January and February numbers, and a valuable memorandum appears in our March number, (p. 159,) from the pen of the Hydrographer to the Admiralty, confirming the conclusions at which we had arrived as to the effect of this westerly current on the loss of that ship.

The bottle to which we now specially refer has added another confirmation to those which we have already mentioned as contributing their silent but convincing testimony to the existence of this westerly current *southward* of the equator. The present bottle, thrown over by the commander of H.M.S. *Lee*, in September last, about a hundred miles S.E. of Ascension, proceeds towards the *Rocas*, passing southward of these about sixty miles is found on the coast of Brazil to the westward, and not far from Ciara!

Now although this is not N.E. of the *Rocas*, where an easterly current is said to be found, it clearly proves that the westerly set which we know passes northward of the *Rocas* extends also to the southward of them. Indeed, two other bottle tracks on our chart show the same, for they pass a hundred and twenty miles due South from them. But we ask again, where are the proofs of the easterly set between the equator and the *Rocas*, of which we are informed, and which the *Shipping Gazette** so complacently imagines it has discovered in the words of the Hydrographer to the Admiralty as to quote them! forgetting that the easterly current, so far West as this, is really North of the equator, and is that which contributes some equatorial waters to the Guinea current, as was pointed out by a Portuguese naval officer long ago, in our volume for 1862, (p. 189,) while that westerly current southward of it, including the *Rocas*, and extending even southward of them, is proved even by this last bottle track; but in which current an easterly set is pretended to have been found. We say again, where is the proof of it?

* See paper of 7th of April.

Now regarding our bottle tracks, we have sufficient in our chart to show the effects of both these westerly and easterly currents; for while we have now eleven thrown over between the equator and 10° S. running westward; between 4° and about 6° N., (not further than from 25° W.,) we have four tracks of bottles running *eastward*, found, in fact, on the African shore. Here indeed is direct proof of the Portuguese officer's easterly current, just where he said it was; and curious it is also that it is shown to be more directly eastward in the latitude of Cape Palmas, where this current would be strongest,—proving that this easterly current North of the equator, even so far West as 25° W., seems to be but the effect of the Guinea current. We hold this (as well as some other effects which we may hereafter show) to be an interesting proof of the value of the bottle experiment. The following are the papers to which we have been alluding:—

“H.M.S. *Himalaya*,—Bound to Quebec, 4th of May, 1865.—Lat. $39^{\circ} 59'$ N., long. $30^{\circ} 12'$ W.,—left Gibraltar 29th of April,—H.M. 7th regiment 2nd battalion fusileers. All well: heavy N.W. breeze for the last two days, and a heavy N.W. swell since leaving.

Signed JOHN THOMPSON, Master, for Captain.”

The *Himalaya* was about one hundred miles N.W. of Fayal, to which island the bottle has drifted in less than thirty-four days.

“H.M.S. *Lee*,—26th of September, 1865.—Lat. $9^{\circ} 10'$ S., long. $12^{\circ} 53'$ W.,—from St. Helena to Ascension.”

We find no remarks regarding the weather or state of the sea at starting on this paper, which is thus noted where found.

“This document received this day at her Majesty's consulate, Pernambuco, from the party who found it as above stated. Pernambuco, 1st of March 1866, Bentinck W. Doyle, H.B.M. Consul.”

The statement here referred to is,—

“This paper was found on the 5th of February, at a little village on the coast of Brazil called ‘Praias,’ or ‘Areias,’ in the province of Ceara,” which village the Hydrographer notes to be in about $4^{\circ} 20'$ S., and $38^{\circ} 50'$ W.

We have above alluded to this interesting bottle, which has travelled in a W.N.W. direction about 1,600 miles in 132 days, at a rate of twelve miles per day.

PIRACY IN THE CHINA SEAS.

(Concluded from page 46.)

We had not room in our previous numbers for this appendix to the piratical proceedings in the China seas. If this murder and plunder

is to continue, it will be necessary to have recourse to the old system of convoy; and as to any good effect from representations at Peking, there is little chance of that from the weak and impotent Chinese government. Next to the method of convoy, self-armament of every merchant ship trading to that part of the world seems to be absolutely necessary.

The following will serve to illustrate the advances being made by pirates on the coast, as the events there narrated occurred only some fifty miles from Hongkong.

To the Editor of the Daily Press.

Barque "Henry Darling," Hongkong, Oct. 28th, 1865.

Mr. Editor,—I have no doubt but you will be anxious to hear of a serious encounter with pirates on board this vessel. I shall begin at the beginning, though I am so weak as scarcely to be able to perform such a task.

We left Double Island, Swatow, about five o'clock on the morning of the 25th inst., with a light fair wind, and got fairly out to sea by the afternoon. Towards evening it fell a calm, and we drifted with a current, now and then getting a breath of wind, till a pilot came on board to take us to our destination (of course showing us his good characters, &c.). We had noticed a large Macao lorcha evidently dodging us, passing and repassing, as she could easily have come up to us at any time, as the light winds and calm continued. Evening came, and this lorcha came closer. The pilot then said, "That picey boat pirate, he makey fighty another picey last night." We had however taken timely warning, the captain (J. Hanniball) having ordered all the arms on board to be ready in case of need. I had a good revolver with me ready loaded. At 8h. p.m. the boat came so close that by the dim light of the young moon we could see a stir among them. The two 6-pounders were loaded with round shot on the main deck, and also two 3-pounders on the quarter deck, the muskets brought up from below and bayonets fixed, as well as the few cutlasses we had. Though I was but a passenger in this vessel, my life was as dear to me as others, and I did all I could in helping—not forgetting to put on the revolver, and one of the best muskets I picked out. Now all got ready; the Malays called to stand by the guns, a few aft, the others amidships. She began to steal aft of us, and we could distinctly hear them talking on board the lorcha. We were now quite assured of their intentions, and we had made up our minds to fight or die; we knew it would be one or the other. Orders from the captain were given to fire the 6-pounder on the starboard side, as the pilot had been telling him so too, or soon they would be under the stern, and there being no steerage way on the ship, the large guns would be useless. At 8h. 30m. bang went the first, and he was not slow in replying. Now we were all assured of his intentions; the small guns of the quarter deck were then fired, and it soon became hot upon deck. I took up the muskets as soon as possible, along with the captain and chief officer. We saw them getting their stinkpots ready from the

foremast top. They soon with the help of oars came under our stern, and the stinkpots flew by the dozen and the balls as thick as hail. We then beat a retreat from the quarter deck, still firing. The men from the lorchas now had jumped on board, and rushed at us madly; we made for the fore part of the ship. The Chinese had long previously to this gone off to hide themselves, but the Malays stood till we could stand no longer. The deck of the ship was now one mass of fire. The captain going up the forestay was shot dead and fell down at my feet; the chief officer took to the fore rigging, and in his ascent was shot in three places. I had now no alternative but go over the bows, and as one came forward to me I shot him with my revolver dead; soon others filled his place, and I got over the bows to get on the martingale. The Chinaman bayoneted me between the shoulders into the lungs, just glancing off the back bone; another shot me in the arm, and I fell into the sea. There were many Malays hanging on to a rope over the bows, and they kept firing their three revolvers at us in turn. The carpenter (I had forgot) had been killed previous to my leaving the deck. Now nothing but sink or swim—life or death. A faint breeze began to ripple the water now, and the vessel began to move perhaps about two miles an hour, as all the sails were left hanging. There were now too many to hold on one rope, and some must leave and swim at his own risk. A sudden splash with a yell from the Chinese on deck; I looked around—the captain was sinking; another and then another splash—the carpenter had gone to rise no more. I had now began to feel faint, and as the ship was increasing her speed I came round to the starboard side; but with all my good swimming the vessel was leaving me. By this time I had got abreast the poop, and I heard a voice call out, “Jack, here is a rope’s end for you” (he spoke good English); “come up, we will not kill you, come up.” “Oh, no; I had better die here.” I had got round the stern, and a rope hanging over I seized hold, as I could not have done much more; but my friend’s voice again said, “Here is a rope, make it fast around you, and we will hand you up; I can assure you nothing shall happen.” I made it fast, and four men hauled me up, took off my clothes, and brought me a pair of dry flannel trousers from among my own things, as all my clothes were turned out on the cabin floor.

As soon as I could walk he led me down into the saloon, and one of them said, “Oh, I know you,—no fear;” another, not quite so pleased at my reception, struck me a heavy blow across the side of my face with the flat of his sword; but the other, patting me on the back, said, “Don’t take offence.” Now I was interrogated about the ship, where from, cargo, money, &c., and led on deck at the peril of my life if I did not reveal all, and where the captain was and others belonging to the vessel, as they had made up their minds to burn her. I went back to the cabin,—there was my boy ready for his head to be cut off; and after entreating with this little friend, the vessel and the boy were to be spared, but they would take everything of use away. True to their word, they did not leave us scarce sufficient clothes to put on. All the

cabins were sacked; rice, biscuit, fowls, ducks, beef, ropes, even our bedding, were carried off, and they left the vessel, and us to starve, about midnight. My boy aroused me from a dreamy sort of slumber, and I got up, saying, "Well, boy, here we are alone, and a strong breeze blowing." I went down the hold and found some of the men, got them up, and in half an hour, to my surprise and delight, down came the chief officer. I cannot describe the feeling, but leave you to surmise. "Here we are, let us set sail at once." "But," said he, "where are we?" as they had been taking the ship to seaward. We went below; no chronometer, no barometer, no compass, no lamps. Never mind; I weak and faint from four wounds, he ditto. We struggled all night, next day, all night again; morning came land, but where are we? At last we came across a fishing boat, which we got with some difficulty to pilot us for 100 dollars into Hongkong, where we arrived, after living on scarcely anything, on Saturday night, the 28th of October 1865, from the most perilous voyage I have ever made, and hope never to make another such.

I am, sir, yours obediently,

J. RUTTER,

Passenger on board "Henry Darling."

—*Overland China Mail.*

CHARTS AND BOOKS PUBLISHED BY THE HYDROGRAPHIC OFFICE, ADMIRALTY, in April, 1866.—Sold by the Agent, J. D. Potter, 31, Poultry, and 11, King Street, Tower Hill, London.

1,828.—England, East Coast, the Downs, with views, Staff-Commander Calver, R.N., 1865, (2s. 6d.)

148.—Mediterranean Sea, Port Mahon, Spanish survey, 1852, (2s.)

299.—Newfoundland, West Coast, St. Margaret and Castor Bays, Ferolle, 1859, (2s.)

342.—Nova Scotia, Metway Port to Lunenburg, Commander Shortland, R.N., 1863, (2s. 6d.)

446.—West Indies, Jamaica Island, Commander R. Owen, R.N., and others, to 1866, (2s. 6d.)

2,522.—Brazil Coast, St. Catherina Island to Rio de la Plata, Captain Mouchez, F.I.N., 1863, (2s. 6d.)

976.—Philippine Islands, Manila Bay and two plans, Captain Claudio Montero, Spanish Navy, 1861, (2s.)

571.—British Colombia, Blunden, Cypress, Tracey, and Cullen Harbours, D. Pender, Master, R.N., 1863, (1s. 6d.)

West India Pilot, vol. II., 2nd edition, revised by Staff-Commander Penn, R.N., 1866, (10s.)

Catalogue of Admiralty Charts and Books, corrected to March, 1866, by Commander Edward Dunsterville, R.N., (3s.)

EDWARD DUNSTERVILLE, *Commander, R.N.*

Admiralty, Hydrographic Office, 20th April, 1866.

THE
NAUTICAL MAGAZINE

AND

Naval Chronicle.

JUNE, 1866.

A NEW MOTIVE POWER. *Danford's Steam Generator,—Probable Revolution in Steam.*

If what is claimed for the recent invention of E. Danford, of Geneva, Illinois, shall prove true when fairly put to the test, it will utterly revolutionise the present method of obtaining power from steam. We are disposed to believe that he has solved the problem how to cheapen steam power, materially reduce the weight of boilers and the consumption of fuel, and at the same time rob steam of its terrors. The losses of life and property from explosions make the destructions of steam in time of peace almost equal that of gunpowder in time of war. Danford has invented a method of producing and utilising super-heated steam, which is either a great delusion or a great revolution of steam as a motor. So far as we can form an opinion, it is a great success, and will achieve wonders for mankind, and make the inventor rank with Watt and Fulton.

A brief history of the invention and description of the machine may be interesting to our readers.

Within three years past a citizen of Geneva, Illinois, William E. Danford, who possesses the inventive mechanical faculty in a high degree, got up early one frosty morning to build a fire in his stove, and heat the water in the kettle. After starting the fire he placed the kettle, full of cold water, on the top of the flat stove plate, and sat down before the fire to muse over an improvement in a reaping machine which he was building. Pretty soon he saw the kettle vibrating on the stove plate. This motion was continuous. At first he thought it was caused by the water boiling; but taking off the lid

he discovered it was not boiling: still the regular vibration continued, growing stronger if anything. He then removed the kettle, when he discovered in the bottom a sand hole, from which trickled, slowly, drops of water. This water coming in contact with the hot stove plate, was instantly converted into "super-heated steam." The explosion of the drop of water produced the shock or movement observed in the kettle. The immense power generated from so small a quantity of water as a drop, arrested the attention of the inventor, and the question at once occurred to him, why cannot this power, so vastly greater than ordinary steam, be utilised? And to the solution of this problem he set himself at work with an energy and perseverance that shows him to possess considerable of the super-heated steam principle in his own mental and physical organism.

He looked over what authorities he could find on the subject of steam in its various conditions—particularly in regard to super-heated steam. He found that while its power was recognized and defined, yet its employment was not considered either safe or economical; and, indeed, that little headway had ever been made towards its introduction as a motor.

After a few months' search and reflection, he built an experimental model, to test an idea that had struck him, and to his great satisfaction he found its performance equal to all he had hoped for, and its safety perfectly demonstrable. After making a series of experiments on his little machine, continually applying improvements that suggested themselves, he at length resolved to try the new invention on a larger scale, and the result is witnessed in the engine now in operation at No. 90, West Lake Street, built for him by the Vulcan Works of this city last spring. There may be seen a five horse power engine, of five inch cylinder and eight inch stroke, doing twelve to fifteen horse power work in grinding corn, with a consumption of one half the fuel of an ordinary engine doing the same work. This engine is driven by steam, super-heated from 500° to 600° Fahrenheit, though it may be worked to advantage at 350° .

Danford's boiler differs from the ordinary boiler in having no water in it—nothing but highly rarified steam, which is generated as fast as consumed by the engine. Instead of a boiler he calls it a "generator." His generator consists of a hollow cast-iron globe or large pot, $2\frac{1}{4}$ inches thick, suspended in an ordinary furnace as a pot or kettle may be suspended over the fire. There is a casing to inclose the fire and conduct it around the generator and up the chimney, where, by the way, much caloric is uselessly wasted. An iron tube, made of $\frac{3}{4}$ inch gas pipe, enters the globe or generator at the top, and is conducted down to its centre, where it terminates in a rose sprinkler, perforated with forty or fifty holes. By means of an injection pump, about a table-spoonful of water is spread into the generator at each stroke of the pump, in the form of spray. This spray does not come in contact with the sides of the generator, for before it can reach that far it is expanded into hot steam. No explosion can take place, because there is no water in the generator to explode. The water from

the tube is already exploded on entering the generator; that is, it passes instantaneously from the state of spray into that of super-heated steam. No further expansion is possible. If the super-heated steam should separate into its constituent gases—oxygen and hydrogen—they would produce no greater pressure or expansion.

The generator which Danford is using is capable of sustaining a pressure of 5,000 pounds to the square inch; but the steam gauge shows that with 600 degrees of heat there is only 150 pounds of pressure. It is the opinion of Horatio Allen, of the Novelty Works, New York, that the generator is unnecessarily thick, strong, and heavy, though it weighs less than half as much as a six horse power boiler filled with water. Allen thinks that a generator one inch thick, of cast-iron, is amply strong.

Recently, Danford's machine was tested against a fifteen horse power engine with a locomotive flue boiler, eight inch cylinder, and fifteen inch stroke. The same engineer attended to each, and weighed the coal and measured the water. The trial lasted three days. The work done was grinding corn, and the following was the result:—

Fifteen horse Engine and Boiler.

Fire surface	310 feet.
Pressure per inch	40 pounds.
Coal consumed per hour	101½ pounds.
Water evaporated per hour	80 gallons.
Corn ground per hour	18 bushels.

Danford's Generator and Five horse Engine.

Fire surface	22½ feet.
Pressure per inch	110 pounds.
Coal consumed per hour	53½ pounds.
Water evaporated per hour	24 gallons.
Corn ground per hour	27 bushels.

These figures tell their own story. With one fourteenth part of the fire surface, thirty-three per cent. more labour was done by Danford's little generator than was accomplished by a fifteen horse locomotive boiler, and that, too, with one half the consumption of fuel. Danford's generator actually got twenty horse power work out of an engine built for a five or six horse power boiler. Twenty-five gallons of water, in the form of super-heated steam, proved to be thirty-three per cent. more powerful than eighty gallons of water in the shape of saturated steam. In other words, one gallon of water in the condition of "dry steam" is equal in efficient power to nearly five gallons in the condition of "wet steam." Consider the tremendous power super-heated steam would give to a river or ocean steamer. A five hundred horse power engine as now rated could be made to exert two thousand horse power of force against the waves, winds, or currents. May not the Atlantic yet be crossed from New York to Liverpool within a week by vessels propelled by super-heated steam? We look for such a result when the new principle of generating steam shall be applied to ocean navigation.

When 212° of heat are applied to water it boils, and is converted into steam. Steam at 212° has a tension or pressure equal to one atmosphere, or nearly fifteen pounds to the square inch. Water in steam at 212° expands 1,670 times its own bulk. That is to say, one cubic inch of water produces one cubic foot of steam at 212°. A quantity of water confined in a vessel when heated to the boiling point presses against the sides of the boiler with a force of fifteen pounds to the inch, or equal to the pressure of one atmosphere at the sea level. This pressure increases very rapidly as additional degrees of heat are applied. To give unprofessional readers some idea of it, we present the following table:—

Heat—Pressure to Inch Surface.

212°	14.75 pounds	pressure or	1	atmosphere.
224	22	" "	1½	"
250	29.50	" "	2	"
264	37	" "	2½	"
274	45	" "	3	"
292	60	" "	4	"
306	75	" "	5	"
340	120	" "	8	"
357	150	" "	10	"
389	225	" "	15	"
415	294	" "	20	"

Thus it is seen that when the heat of boiling water is barely doubled, the pressure or strength of expansion is increased twenty fold! In proportion to heat is expansion. Apply the caloric and the steam gauge walks right up. But in Danford's generator this law of expansion is set at naught. Danford found that when he applied a heat of say 325°, his indicator stood at 106 pounds of pressure. He increased the heat to 350° and found 130 pounds of pressure resulting, but the efficient power of his engine had doubled. But what is more extraordinary is, that when he had carried the heat up to 600° the pressure on the gauge had increased but 10° or 15°; the lead packing of the cylinders melted from the heat of the steam, showing that it must have been at least 612°, for at that point lead fuses, and yet the pressure on the indicator and safety valve was less than 150 pounds, while in the water boiler 415° degrees of heat produces 294 pounds of pressure. Danford does not undertake to explain the cause of this singular fact; but contents himself with having ascertained it. While the pressure upon super-heated steam does not seem to increase beyond a certain moderate limit, the power imparted to the engine continues to increase with the degrees of heat. Who can explain these phenomena!

The first question the visitor asks of the inventor or his agent, is, "Will the generator explode?" Mr. Danford defies any engineer to blow it up. The positive limit to the expansive power of steam he claims to have ascertained. His generator holds about as much as a barrel—say 3½ cubic feet. To fill this with steam requires but four

cubic inches of water at 212° , and when the heat is up to 612° , or the melting point of lead, there is still less than a gallon of water vapourised within the generator, and when the pressure exceeds certain limits, the steam blows off at the safety valve. The common boiler of six horse power contains something like sixty cubic feet of water, which, if suddenly converted into steam, would fill seventeen hundred times its own bulk. Hence, no boiler could contain it. It would tear through a cannon's thickness.

The cause of boiler explosions may be traced to the sudden conversion of too much water into steam. If one cubic foot of water should expand into steam in a second, it would tear a twenty horse power boiler into pieces. But in Danford's generator not more than half an ounce of water is converted into steam at each jet of the pump. It will require three or four jets to throw in a cubic-inch of water, and an inch makes less than a cubic foot of steam. Meanwhile, the steam is escaping into the cylinders as fast as it is being created in the generator. When the engine stops the pump stops. When the pump throws in jets in quick succession the engine takes out steam in equally quick strokes. How, then, can it explode? There is no large mass of water in the generator to suddenly vapourise and tear it to atoms. It does seem as if Danford had solved the problem of perfect safety by simply keeping the stock of water outside of his boiler instead of inside of it, as is the present custom, and using it as he needs it. The water in the tank is safe and harmless; but confined in a boiler over a fierce heat it becomes angry and terrible in its wrath. Why, is it not the true principle to admit the water to the boiler or generator only so fast as the heat can convert it into steam? Does not this secure absolute safety as well as great economy in the size and weight of boilers? Only one third of the space of a boiler is devoted to steam, two thirds are filled with water. As super-heated steam is at least double as powerful as the steam in locomotives, only half the remaining space is required. In other words, a generation of one sixth the capacity of a boiler will equal it in efficient power.

A multitude of improvements in the engine and boiler have been made since Watt's time. Watt, in 1768-9, so far perfected stationary engines and boilers that they came into general use for manufacturing purposes. Fulton successfully applied Watt's steam machines to propelling boats through the water in 1807, but he made little or no improvement on the engine or boiler. Stephenson, in 1829, first successfully applied steam to railway locomotion. Ericsson invented the screw propeller in 1837. One man invented tubular boilers, another flue boilers, another cut-offs, safety valves, indicators, condensers, blowers, governors, eccentrics, throttle valves, steam alarms, pressure gauges, try-cocks, &c. Perhaps a thousand improvements, great and small, have been made on the marine, locomotive, and stationary steam machines since Watt's time. But all the inventors have proceeded on the principle laid down by the Marquis of Worcester in 1663, of generating the steam in the vessel containing the supply of water.

It was reserved for Danford to challenge and overthrow this principle, by boldly abstracting the water from the generator, and admitting it only so fast as the heat can vapourise it. Hence the "boiler" contains nothing but steam. Danford's system is more than an improvement—it is a total subversion of all that has preceded it for two hundred years in respect to the mode of vapourising water for motive purposes. Hereafter men will marvel that steam was generated and retained in the same vessel containing the water. It will look as absurd to them as it would be to put the coal, as well as to put the water, inside the boiler instead of outside. And our children will shudder at the perils encountered by their brave but ignorant parents, who applied 300° to 400° of heat to whole tons of water in a close vessel, strained with compressed steam, and in constant danger of explosion from sudden conversion of boiling water into vapour,—a thing that was occurring almost daily with terrible destruction of life and property.

As the term "super-heated steam" is destined hereafter to become a familiar word, it is proper to explain its meaning. Many persons suppose it means water heated until it is resolved back into its original elements of oxygen and hydrogen gases. But this is an error. Webster defines thus: "Super-heated steam—steam removed from contact with water, and heated until it resembles a perfect gas; called also surcharged steam, and hydrous steam, and dry steam. Steam heated only until the water it holds in suspension is vapourised, is erroneously called 'super-heated steam.' Saturated steam is steam as delivered from a mass of water and holding water in suspension; mechanically called also wet steam." From these definitions it will be seen that the steam in the common boiler is *saturated steam*, while that produced by Danford's generator is *super-heated steam*; that is, it holds no water in suspension. The latter is much more powerful for mechanical purposes than the former.

A company has been organised for the introduction of this invention into general use, with Horatio Allen, of the Novelty Works, New York, as President. Its capital is 2,100,000 dollars, and it purposes to grant the right of using the invention to manufacturers throughout the world, for a reasonable royalty upon each horse power. Those who are interested in scientific improvements will find it worth their while to make a personal examination of this very remarkable invention.—*Chicago Tribune.*

[The following further remarks on this subject appear in the *Pacific Commercial Advertiser*, from which we repeat the foregoing. We trust that the same success will remove the obstacle here as attended the production of fresh water from salt by Mr. Lighthall. We believed, however, that this difficulty had been overcome long ago, according to one of our numbers in 1841, and also 1849,—the latter Mr. Bride's process.]

The main feature or novelty in the invention is the separation of the water and steam into two separate containers,—the water remaining

cold in its retainer till used, and of course perfectly harmless, while the expanded steam alone occupies another container,—thus robbing these powerful elements of the dangerous features they possess when united.

The mode of using steam referred to is not entirely new, and has been tried in New York and elsewhere in various ways before; but not in a way that promised so great success as does this. One drawback to its practical use will, perhaps, be found in obtaining a metal that will resist the great heat required in making dry steam,—the same difficulty that attends the use of the caloric engine on a large scale. For small engines Ericsson's power is said to work well, but it has not yet been successfully applied to vessels, and perhaps never will be.

Another obstacle that seems likely to stand in the way of the practical use of Danford's new engine on sea-going vessels, is the formation of lime on the inside of the "generator," or boiler, as salt water is generally used at sea. Another writer on this new motive power, however, claims that one great advantage of it is the fact that lime water does not form any incrustation in it, and that "super-heated steam seems to possess qualities which prevent the deposit of this lime." If this difficulty is overcome, as claimed, and if it be true that the heat applied in producing this motive "is not sufficient to in any way impair the texture of the iron," it may yet be applied to sea steamers successfully.

We call attention to this subject as there are many engineers scattered through our group, some of them are very skilled in their calling, and those possessing leisure or facilities for experimenting, may possibly overcome difficulties which other mechanics or inventors might overlook, and thus render valuable addition to science. Such things have been done, and may be again. A few years ago Mr. William A. Lighthall, a practical engineer of New York, became interested in our first inter-island steam enterprise, and invested in it all his property—some ten or twelve thousand dollars. He brought the *Akamai* to this port, and a year or two later had charge of the *West Point*. When the company abandoned the enterprise, he lost every dollar he had in the world, and was left to his talent and integrity to win back what he had lost. Many of our readers may remember him and the circumstances of his reverses. It was while spending a few months here unoccupied, or while on his way to San Francisco and New York, that he originated in his mind a method for distilling fresh water from salt water, to which he afterwards devoted all his energies. We met him in New York several times last summer, and he narrated the reverses he encountered here, and his feelings when he was left destitute in a distant land. But without being discouraged, he set his wits to the task of devising some way to produce fresh out of salt water, and told us of his various plans for distilling water, none of which stood the test of trial. It was a long story, but exceedingly interesting, and one that illustrated the old adage, that "necessity is the mother of invention."

He determined not to give up the half-formed invention he was planning, and through several years made numerous experiments, as far as his limited means would allow,—none of which seemed practicable. The late civil war, however, which gave rise to many improvements in warfare and arms, was what developed Mr. Lighthall's invention. A regiment was about leaving New York for Ship Island, near the mouth of the Mississippi, which was selected for a naval depot prior to the capture of New Orleans. There was no fresh water obtainable on Ship Island, and the War Department called for a machine to produce it, and was referred to Mr. Lighthall, who was then employed on the Aspinwall steamers, as the most likely man for the job. On being called before the Secretary of War or the General in command, he said he had a half-developed plan, and thought he could construct a machine, after considerable time and experimenting, that would make fresh water. "We must have 1,500 gallons a day, and want the machine in thirty days."

Poor Lighthall was struck dumb, and could not answer until after making inquiries; but returned next day and said he could make one in forty-two days, which, he thought, would distill the required quantity. "You shall have ten thousand dollars and expenses paid, if successful," was the curt answer of the official.

Mr. Lighthall's genius was immediately set to work, and he constructed his machine, delivered it within the allotted time, found it successful, received the reward, and obtained, in addition, a patent for it. Nothing but this invention allowed the Union troops to remain on Ship Island and operate against New Orleans and Lower Louisiana, and nothing but the imperative demand of the occasion spurred him to success. His machines were afterwards ordered by the War Department for other places, and always proved satisfactory. At the time of our visit to New York he had contracts pending to over forty thousand dollars, to supply steamships with "Lighthall's Fresh Water Condenser," and no steamship is now considered complete without one of these machines, which are capable of producing fresh water enough for the boilers and for all other uses on board a ship of any size, from one to five thousand tons.

We instance this to show what an inventive mind can do when driven by necessity to accomplish an apparent impossibility. Mr. Lighthall left Honolulu some eight or ten years ago without a dollar of his own, and is now in the receipt of a comfortable income, derived from his inventive talent alone. His invention is one of the most valuable known, for it can be used on any vessel for producing an ample supply of fresh water, and at very little cost.

Regarding this motive power, the fact that it has received the endorsement of the best engineers in New York, and that the patent right has been purchased by the proprietors of the Novelty Works in that city, tends to inspire confidence in its value and in its promised success.

REMINISCENCES OF JAPAN,—*The late Operations of the Combined Fleets.**

The extensive country formed by the group of islands which extend to the northward from the China Seas, has for some time engaged the attention of the principal nations of Europe. It was in the year 1858 especially, that Japan began to emerge from that exclusiveness in which she had hitherto kept herself, by opening the commercial ports of Kanagawa, Nagasaki, and Hakodadi. This liberal measure was happily followed by numerous acts which materially modified that measure. The largest of the three ports, Kanagawa, afforded a safe anchorage to ships in a large bay some leagues South of Yedo. It was to Kanagawa, as was anticipated, that the first ships went; but the Japanese government was not long in becoming alarmed at the intimacy which sprung up between their people and the Europeans, at a port so near to Yedo: and they deemed it prudent to assign them a place of residence not so much frequented as Kanagawa. In fact, a marsh was selected, which extended about two miles to the southward, where some barracks of wood were constructed. The Europeans complied at first provisionally; then they found that the anchorage off Yokohama was far better than off Kanagawa, (Yokohama being the name of the new town,) and that its isolation even gave them great advantages; therefore they remained there. Gradually the native merchants came there and established a Japanese custom-house, and things went on so well that Yokohama in a short time contained a colony of foreigners whom the Japanese treated with respect.

Now Yokohama is composed of two parts, presenting a physiognomy among its people very distinct from each other: to the North is the native village, with well-peopled streets, formed by wooden houses, which the Japanese so readily construct in a very few days:—to the South the European town, with spacious dwellings, surrounded by gardens, uniting a foreign style of architecture to the Japanese. A handsome pier extended along the beach, fronting which the houses of the consuls were distinguished by their flags. Coolies were seen busily employed conveying goods of various kinds about them: but the streets are narrow and irregular, still the population is small, yet this population is composed of persons from all parts of the world. At the end of the town near the sea stands the Japanese custom-house, at which the merchandise is deposited as it is landed from the junks which arrive from the neighbouring shores, and which receive in return that intended for embarkation in the merchant craft. The town, surrounded by canals and marsh, communicates with the foot

* This account from the *Revue des Deux Mondes*, gives an insight to this yet ill known country, that we consider it worth transferring to our own pages. Our own despatches gave the proceedings of our own squadron, those of the French form a small portion here.

of the hills, where there are suburbs by means of bridges with wooden pallisades, and by well armed military posts.

The environs of Yokohama, like all the South of Japan, present a most fertile aspect. To realize the picture one might imagine a range of well wooded hills separated by extensive valleys covered with cultivation, the lowest part being occupied by rice fields, while corn covers the higher. The prevailing trees are the pine, which occupy the hills mingled with laurel, oak, and others of varied foliage. Peasants' houses peep out here and there through the foliage, and banks covered with flowers of camellias, tufts of bamboo and palms. Ascending one of the pagodas, with their curious sculptured ornaments, where the goddess of sleep is seen mysteriously arrayed and seated on the verandah, affords a most gratifying view. Beyond the hills appear the blue shores of the bay of Yedo, covered with ships and fishing craft under sail, here the chain of high hills of the isle of Nipon, containing two capital towns of the country, hills which are lost in the distant haze of the horizon. Beyond this, again, is the snowy peak of Fusi-yama, (the unequalled mountain,) above 9,000 feet high, its crater slumbering now for two years. The picture of foliage, not so flourishing, perhaps, as within the tropics, has charms for the traveller: it presents the fresh verdure of France with the blue Sicilian sky and transparent horizon of the Mediterranean.

Leaving Yokohama by the native quarter of the city, the road to Kanagawa lies northward, and leads to the part where the Japanese governors reside, forming the two towns of Yokohama and Kanagawa, and which are in a manner connected by the road between them. Around these wooden dwellings is a permanent camp, under a high palisading, which camp consists of a large body of infantry and native artillery. But in spite of its imposing appearance, the Governors hill might be very easily attacked by the ships at anchor in the roads, while nothing could hurt them from the batteries on the shore. The consuls from France, England, and Holland, who resided at Yedo, soon abandoned the capital, where they were closely watched, in a manner truly inquisitorial, and installed themselves among their own countrymen. The American minister, however, and the Russian, whose policy it was to be at Hakodadi, and had always been received as protector and adviser of the Japanese government, persisted in remaining at Yedo. But it was not long before the increasing prosperity of the European colony of Yokohama attracted the attention and caused uneasiness to the Japanese officials, who tried various ways to invade their district by officers. The marriage of the Tycoon, the reigning sovereign of Japan, with the sister of the Mikado, the spiritual sovereign, was at the same time announced officially, as the signal of a union between the parties which divided the empire in hostile feelings against Europeans. Consequently vexatious annoyance of all kinds increased, and in June, 1862, the English legation was attacked, causing the death of two sentinels. This was again followed by an act of violence still more outrageous.

On the road called the Tokaido, which connects Yokohama with the capital, the Japanese daimios pass every day with imposing re-

tinues on their way too and from their residences. From Yokohama, where the English are most numerous, excursions are commonly made, and the haughty escorts of these Japanese were frequently met by them, without submitting to the national custom required by their couriers of prostrating themselves as they were passed, and until now these couriers were satisfied by merely calling out to them in some threatening terms. But on the 24th of September, 1862, an English merchant, Mr. Richardson, was riding with three friends along this road, and at eleven in the morning met a cavalcade coming from the capital, containing the prince of Satsuma. They continued along the side of the road without stopping as the morimon or palanquin of the prince passed them. The guard, carrying sabres, observed this, and intimated to them to turn back, and before they could do so attacked them with their sabres. Mr. Richardson fell wounded, and his three companions escaped, but not without being also wounded, towards Kanagawa, and Mr. Richardson's body was thrown into a neighbouring field, the cavalcade then continuing their journey, stopping only about ten miles further for the night.

Soon after this, another proof of the vindictive feeling of the Japanese government occurred. After the foreign ministers had left Yedo, it appeared that new residences were constructed by approval of the Tycoon on the Gotten-yama, a height in the southern part of the town, and commanding the approach to the Tokaido. On one of them being completed, that for the English officer, it was intimated that another site should be selected for them instead, in Yedo, which was agreed to. The last communication on the subject took place about the end of January, 1863: On the 1st of February the British legation was foremost in the disturbances which followed: the bad feeling showed itself at several places, and the Yedo government left it for their own servants to bring out the hostile feeling: in fact, the circumstances under which the affair transpired showed their complicity in it. By this the opportunity was seized by them for not executing the treaty.

On the news of the above occurrence the whole of Yokohama was excited. A meeting was held, at which all the foreign consuls were present, as well as the residents, at which it was proposed to collect the troops they had, to obtain more from the ships of war, and in the evening to attack the daimio's cavalcade as it passed along the tokaido. The English minister, however, disapproved of such measures of reprisal, from the small force at their command and the serious consequences which such proceedings might produce. The daimio, warned by the governor of Yokohama of the hostile intentions of the Europeans, left his house hastily. As to the government of the Tycoon in reference to punishing the assassins, they gave evasive answers. The prince was gone, and it was impossible to know among his troops who were the veritable murderers. Besides, the prince of Satsuma was powerful, and would resist any such attempt, and thus the Europeans were obliged to temporise. The government, too, appeared to be in a critical condition, and a crisis seemed to be approaching. It was known that the great daimios hostile to strangers and surround

ing the throne of the Mikado, were busily working against the Tycoon, and that the second in power at Japan was required to go to Kioto to justify his conduct. The maps specify Kioto the capital as Miaka, which word simply means capital. At the commencement of 1863, the Tycoon set out on his journey, and informed the foreign ministers that he would do all he could to arrange matters. He had received, he said, orders from the Mikado to expel them, and as the refusal to obey this order entailed on him dismissal from his station, which he would be ready to yield, he should gain what time he could in order to induce the Mikado to adopt a different and more just line of policy. On many occasions the Tycoon had, before the complaints of the foreigners, thrown all the blame on the daimios, and each time had represented to him that in case he should be engaged in hostilities with them he would have the support of the powers which signed the treaties of 1858; but the Tycoon had answered that such was no doubt an extreme case to which he should not resort, and that if war should take place between him and the daimios, he was sure of his cause.

Whatever might be the real opinion of the Tycoon, it is certain that shortly before his departure the government of Yedo redoubled their means of attack and defence. He had formed a corps of officers of European engineers: he had sent young Japanese to Holland to receive there a scientific military education, for it must be remembered that of all the Eastern nations Japan alone had never accepted the services of foreign officers: he had established cannon foundries and small arm factories; and had directed his attention to the establishment of a navy. The elementary form of Japanese junks, faithfully preserved for ages, would not do for a service of this nature; he built some ships after European models, and native industry not being able to produce delicate machinery, the Tycoon obtained by foreign commerce several steamers. In fact, new fortifications were constructed at different parts of the coast and old ones were renewed. The great daimios followed the example: they constructed forts, bought or made arms and ships so well, that at the commencement of 1863 they had among them, as well as with the Tycoon's, from twenty-five to thirty vessels from abroad, fitted as well as they could be as ships of war. It was at this uncertain period that the events took place, when the contracting powers of 1858 directed the military operations against Japan, in which we took a part, and which we now propose to relate.

For more than six months the murder of Mr. Richardson and other acts of violence towards foreign residents remained without reparation, when, on the 6th of April, 1863, in consequence of orders from England, an ultimatum was addressed to the government at Yedo by Colonel Neal, the British minister at Japan. On the 26th of April, the day fixed in the ultimatum as the expiration of the time allowed for the answer, the *Semiramis*, bearing the flag of the French Admiral Jaures, cast anchor in the roads of Yokohama. She had arrived from Cochin China, having, with the Spanish ships of war, put down an insurrection. In the bay was a Netherland corvette, the *Medusa*,

commanded by M. de Casembroot, an aide-de-camp of the King of Holland, and the English squadron, commanded by Admiral Kuper, making together some twenty vessels of war in the gulf of Yedo. This employment of naval force proved to be no vain precaution. There was considerable alarm among the Europeans at Yokohama: it was said that in case of hostilities Admiral Kuper could not answer for the safety of the place, and that he offered them a retreat on board his ships: and again parties of those *lonines* were reported to be likely to attack the place with fire and sword, so that no one went abroad without being well armed, and at night every house was barricaded.

The threat of the *lonines* (robbers) was constantly in the mouths of the Japanese authorities when they wished to frighten the foreigners. It is not easy to define the meaning of the term, which seems to have several explanations. Every officer who has lost his station, whether from a serious offence or from the poverty or degradation of his patron daimio, becomes a *lonine*. Reduced to his own resources, and to live among the people being impossible for him, he becomes a kind of brigand, hiding himself in the country, and giving his services with his sword to any one who will pay him for them. Again, officers voluntarily become *lonines* to revenge the death of a friend or to execute the orders of a master: from that moment recognizing no one else than the object in view, they devote themselves solely to it, and to attain it will overcome every obstacle.

The ultimatum of Colonel Neale, precise and categorical, demanded two fold reparation: the Tycoon on one hand was to express his formal regret at not being able to prevent the murder of an English subject on a public road, and to pay an indemnity of a hundred thousand pounds: and Prince Satsuma was first to judge and execute the principal offenders in the murder in presence of one or more officers of the royal navy: then to pay twenty-five thousand pounds to be distributed among the relatives of Mr. Richardson and those who had escaped from the assassins. In case of refusal, the forces of her Britannic Majesty were to take coercive measures of a nature to satisfy the honour and interests of Great Britain.

The Tycoon, as we know, set out for Kioto. The *gorodjo*, a council composed of ministers and the highest functionaries of the country, did not fail from the first to allege his absence, pretending that he alone could settle such important questions, and that it was necessary to await his return. The English authorities did not consider it necessary to wait for him; they believed that all should be conceded at the sight of their guns, and these first symptoms of resistance were unpalatable. Instead of adhering to the plain terms of the ultimatum, Colonel Neale answered the reply of the *gorodjo* by requiring to know when the Tycoon would give a definite answer. The two parties, desirous of avoiding an immediate rupture, resolved to refer to the mediation of France. The *gorodjo* requested the good offices of M. du Chesne de Bellecourt to obtain a further delay, and Colonel Neale, at his request, consented to suspend further operations until the 11th of May.

Unfortunately the events in the interior of Japan were not of a

nature to encourage a pacific solution of affairs. Accounts from Hakodadi addressed to Europeans informed them that the hostile party, under unfavourable influence, had exacted from the Mikado a decree of expulsion against all foreigners. In vain had the Tycoon, it was said, endeavoured to change the views of the spiritual governor. He was at once to carry into effect the Mikado's decree, and various powerful daimios were commissioned to begin hostilities at various points. And to give further countenance to this information, in the beginning of May the following event occurred at Yokohama. One fine morning the departure of the Japanese was reported, amounting to some thousands, from the merchants' quarter as well as from that of the foreigners', consisting in this of their domestics. At the orders of the Yaconnines (the agents of the Tycoon and the principal princes) all had flown, saying, we fear much more the sabres of our officers than the dangers of open hostilities against the town. The road to Kanagawa was crowded with fugitives, on horseback and in hand-barrows, carrying children and luggage. In three days the evacuation would be completed, and the European colony would then be left destitute of all provisions.

Under such circumstances the prompt action of the allies became important; and the ambassadors informed the governor of Yokohama that if the evacuation continued it would be regarded as an act of hostility on the part of the Japanese government, and would be followed immediately by the military occupation of Yokohama. This step was successful. The governor put a stop to the migration movement; and those of the Japanese, on receiving his order to this effect, who had retired to the country were to return to the city in the same quiet manner in which they had left it.

The continual efforts of the feudal party had much changed the character and proportions of the cause of the quarrel. The indemnity demanded by the English was not the only point at issue now. The question of the treaties already signed and broken had now to be considered, and even of the existence of the foreigners themselves in Japan. The representatives of England and France, therefore, setting aside the ultimatum above mentioned, informed the messenger from the gorodjo that they had directed their admirals (Juarez and Kuper) to offer their protection to the Tycoon, and to assist him in resisting the tyrannical party which had compelled him to break the treaty. Another delay, in which the *status quo ante* was preserved, was thus given to the Yeddo government. On the 25th of May, at the British legation at Yokohama, a conference took place between the envoy of the gorodjo returned from the capital, where he had been with the Tycoon's answer, and the ministers of England and France, the two admirals being also present.

Japanese diplomacy is always for temporizing and duplicity. Avoiding straightforward questions, they take advantage of the ignorance of languages, slowness at translation, the least mention of conciliation, in order that with a good opportunity they may make a good retreat. Hence the conferences with the representatives of this country are long, tiresome, and generally little conclusive. This time, at the end

of some hours, the numerous and extraordinary allegations of the envoy might be thus summed up. First, concerning the proposal of assistance lent by England and France against the daimios in revolt, he answered that the Tycoon was not yet decided on suppressing a rebellion by force on which he was not yet fully informed. As to the payment of the indemnity claimed by the two European powers, he could not determine until the return of the Tycoon to Yedo. Then, that the execution of such a measure presented serious inconveniences; it might produce trouble, and the agents of the party hostile to strangers—*i. e.*, the *lonines* about the Mikado—profiting by the absence of the Tycoon, would set about undermining the government in favour of a prince who would expel the Europeans.

The envoy of the gorodjo, in order to soften the effect of the answers, which implied an indefinite adjournment, proposed as immediate satisfaction an indirect and clandestine payment. The Japanese had for some time ceased exacting the demands of the custom house, and this was replaced by the French minister and Admiral Juarez, who retired from a council in which they had no interest.

The Japanese followed up their work with an indefatigable patience. General Pruyn, the United States minister, as we have seen, lived alone at Yedo, thinking to maintain his influence by that course. In the latter part of May his residence was destroyed by fire. Having taken refuge in a neighbouring temple, he tried in vain to remain at Yedo in spite of the pretended fears of the Japanese. On the night of the 1st of June he was surrounded, and under pretext of immediate danger threatening him was placed on board a Japanese vessel in the roads of Yokohama. He no longer remained the only foreigner in Yedo, and the efforts of the government seemed to be more directed against Yokohama, the governors under the cloak of the safety of foreigners proposing to occupy the European quarter with their own troops. These crafty offers were steadily refused by the admirals, and the governors contented themselves with guarding more closely the approaches to the town.

(*To be continued.*)

THE HAUNTED SHIP.

The following narrative is by Washington Irving, but it is not included in his collected works: it must be new to most of our readers.

. . . The world abounds with ghost stories, but it is exceedingly difficult to get them at first hand—that is to say, from persons who have actually seen the ghosts: this may be the reason why they have fallen into discredit with the dubious. I once, however, heard a story of the kind from one who came within an ace of being an eye-witness, and who believed in it most honestly. He was a worthy captain of

the sea, a native either of Nantucket or Martha's Vineyard, I forget which—at any rate, a place noted for its breed of hardy mariners. I met with him in the ancient city of Seville, having anchored with his brig in the Guadalquivir, in the course of a wandering voyage. Our conversation one day turned upon the wonders and adventures of the sea, when he informed me that, among his multifarious cruising, he had once made a voyage on board of a haunted ship. It was a vessel that had been met with, drifting, half dismantled and with flapping sails, near the Gulf of Florida, between the main land and the Bahama Banks. Those who boarded her found her without a living soul on board; the hatchways were broken open; the cargo had been rifled; the decks fore and aft were covered with blood; the shrouds and rigging were smeared with the same, as if some wretched beings had been massacred as they clung to them. It was evident that the ship had been plundered by pirates, and to all appearance the crew had been murdered and thrown overboard.

The ship was taken possession of by the finders, and brought to Boston in New England; but the sailors who navigated her to port declared they would not make such another voyage for all the wealth of Peru. They had been harassed the whole way by the ghosts of the murdered crew, who at night would come up out of the companion-way and the forecabin, run up the shrouds, station themselves on the yards and at the mastheads, and appear to perform all the duties of the ship.

As no harm had resulted from this ghostly seamanship, the story was treated lightly, and the vessel was fitted out for another voyage; but when ready for sea no sailors could be got to embark in her. She lay for some time in Boston Harbour, regarded by the superstitious seamen as a fated ship; and there she might have rotted, had not the worthy captain who related to me the story undertaken to command her. He succeeded in getting some hardy tars, who stood less in awe of ghosts, to accompany him, and his brother-in-law sailed with him as chief mate.

When they got fairly to sea, the hobgoblin crew began to play their pranks. At night there would be the deuce to pay in the hold; such racketing and rummaging, as if the whole cargo was overhauled, bales tumbled about, and sometimes it seemed as if all the ballast was shifted from side to side. All this was heard with dismay by the sailors, and even the captain's brother-in-law, who appears to have been a very sagacious man, was exceedingly troubled at it. As to the captain himself, he honestly confessed to me that he never saw or heard anything; but then he slept soundly, and when once asleep was hard to be awakened.

Notwithstanding all these vagaries the ship arrived safely at the destined end of her voyage, which was one of the South American rivers under the line. The captain proposed to go in his boat to a town some distance up the river, leaving his ship in charge of his brother-in-law. The latter said he would anchor her opposite to an island in the river, where he could go on shore at night, and yet be at

hand to keep guard upon her, but nothing should tempt him to sleep on board: the crew all swore the same. The captain could not reasonably object to such an arrangement; so the ship was anchored opposite to the island, and the captain departed on his expedition.

For a time all went well; the brother-in-law and his sagacious comrades regularly abandoned the ship at nightfall and slept on shore; the ghosts then took command, and the ship remained as quietly at anchor as though she had been manned by living bodies instead of hobgoblin spirits. One night, however, the captain's brother-in-law was awakened by a tremendous storm. He hastened to the shore. The sea was lashed up in foaming surges, the rain came down in torrents, the lightnings flashed, the thunders bellowed. It was one of those sudden tempests only known at the tropics. The brother-in-law cast a rueful look at the poor, tossing, labouring ship. He saw numbers of uncouth beings busy about her, who were only to be descried by the flashes of lightning or by pale fires that glided about the rigging; he heard occasionally the piping of a boatswain's whistle or the bellowing of a hoarse voice through a speaking trumpet. The ghosts were evidently trying to save the ship; but a tropical storm is sometimes an overmatch for ghost or goblin, or even the devil himself. In a word, the ship parted her cables, drove before the wind, stranded on the rocks, and there she laid her bones.

When the captain returned from his expedition up the river, he found his late gallant vessel a mere hulk and received this wonderful account of her fate from his sagacious brother-in-law. Whether the wreck continued to be haunted or not, he could not inform me; and I forgot to ask whether the owners recovered anything from the underwriters, who rarely insure against accidents from ghosts.

Such is one of the nearest chances I have ever had of getting to the fountain-head of a ghost story. I have often since regretted the captain should have been so sound a sleeper, and that I did not see his brother-in-law.

THE MARIANAS ISLANDS.—*Saypan, Medinilla Rock, Anatajan, Sarignan.*

(Continued from p. 266.)

Isle of Saypan.—A short distance North of Isle Tinian is that of Saypan. It is moderately high, and has a peak in its midst of tolerable elevation. Some consider it to be 2000 feet English, but this is evidently an exaggeration. I have not been able to measure it, but I do not think it is above 1000 or 1200 feet high.

Saypan is thirteen and a half miles long, and about seven wide. The peak is an extinct volcano, and is perfectly conical. About two or three miles to the northward of it there is another extinct crater, of very moderate height.

The island was formerly inhabited, and, if one might judge by the extraordinary number of ruins and graves that are found in it, there must have been a large population there. Some caves are still to be seen full of human skulls, which at the time when the early Spaniards were there were objects of great care. At the time of the conquest the island was entirely depopulated, and until nearly the present time it has remained uninhabited. The Americans of the United States established themselves on it in 1810 without the permission of any one, and founded a colony, or rather a calling place for vessels occupied in the whale fishery, which is very good in its vicinity; and to remove them was no small difficulty, which was however overcome in 1815.

In about 1842 the island was colonized with the Carolinians, who had come to Agana seeking for land, as before observed, on account of their own island being overwhelmed. With them was founded the town of Garapan, on the western shore of Saypan, which town at the time of my visit, in January 1864, contained 433 inhabitants, 9 of whom were Chamorros Indians and the remaining 424 Carolinians.

The western shore of Saypan is surrounded by a coral reef, extending from a mile to a mile and a half from the shore. The anchorage of Garapan is very bad. The anchor is dropped off the shore outside of the reef where bottom may be found, which cannot always be done, for the reef is very steep to.

The square of the town is in lat. $15^{\circ} 12' 11''$ N. from observations of meridional altitudes taken on shore under favourable conditions. It is also $1^{\circ} 3' 24.7''$ E. of Umata by observations on shore.

The town of Garapan is recognised from the sea by a tolerably large white rock on the shore, that may be seen from a good distance, the rock being rendered conspicuous by the dark green colour of the trees and shrubs with which the island is covered, and looks like a white sheet in the midst of the country. When this rock bears between North and East it may be steered for; but when to the Southward of East, or between it and South, it must not be approached. The island of Managasa must be left to port, allowance being made also for a reef which lies off it, and a vessel may anchor in 12 to 15 fathoms, taking care that the flagstaff of the town bears to the Northward of East, because on the bearing of East or West of the flagstaff there is a rock called the Tortuga, that is very dangerous, nearly awash with the surface, not by any means large, but on which the sea very seldom breaks. From the Tortuga to the Northward there is a series of rocks, separated by channels, which are connected with the reefs of Managasa, of which in fact they are a continuation.

The anchorage commences in 20 fathoms water about a good mile from the reefs to 8 or 9 fathoms near them, the principal houses of the town bearing about E.N.E. and the island of Managasa North, or perhaps N.b.E. But everywhere the anchorage is rocky, with patches of sand.

The chart of this island (for I know no other than that of the general one of the archipelago, and no particular plan of Saypan,) is bad; for

it was not with those marks that the *Narvaez* anchored in 14 fathoms rocky and sand.

I. Managasa . . .	West point	N. 11° E.
"	East point	N. 14° E.
I. Saypan	N. W. point	N. 35° E.
"	Principal house of Garapan .	N. 68° E.
"	S. W. point	S. 14° W.
I. Tinian	N. E. point	S. 14° W.
"	N. W. point	S. 24° W.

These bearings are by compass, the variations being 3° Easterly. Such bearings, however, do not agree with the chart.

During the season of the N. E. Trades a vessel may lie at the anchorage of Garapan; but in the months of the S. W. monsoon, which extends to the Marianas, a vessel caught in bad weather there will be in considerable danger.

Landing at the town from the anchorage, there is a passage for boats across the reefs that is sufficiently wide and deep, and used by the Carolinians. Steering by the buoys, which are really the trunks of trees, it may be readily adopted by day. Still at night a pilot should be in the boat, for the channel is very tortuous; the reef is entirely awash with the surface, and as the sea breaks on it a boat getting on it would be lost.

All the charts show a considerable reef off Saypan on its Western side, which extending North of the island increases its distance from it, terminating nearly on the parallel of its South point at about eight miles from it. On this reef the island of Managasa is placed, in lat. 15° 12', and two other small islets close to the northward of it. But it is all wrong.

The island of Managasa, which in the charts is placed nearly East and West with the South part of Saypan, really lies about N. N. W. of the N. W. point of Saypan, about 2½ miles distant from this point. In fact, it is the island which appears without a name in the charts in lat. 15° 19' 30". The reef terminates at less than a mile to the South of the island. But all else which appears on the chart to the South of the island without a name should be erased. Nothing exists of the prolongation of the reef, nor any such islands, nor the soundings laid down on them. Three times I have run over all this part in the *Narvaez*, seeing and taking bearings of the island and the reef, on which the sea breaks furiously; and I have observed the port in a boat on the N. W. side of Saypan only, where its entrance really is. I have therefore ample authority for what I have stated.

If in the chart of the island of Saypan the Western shore be corrected by removing all the reefs which are supposed to lie off it from lat. 15° 18' to the Southward, erasing also what is called thereon the island of Managasa, and giving this name to the island which is in lat. 15° 19' 30", as I have explained above, there will yet be many faults in it, but still it will be infinitely better than it now is. At least, although the chart may be full of mistakes, the chart thus corrected

will answer as an outline that will give a good idea of the locality, what it by no means does in the condition in which it now is.

In my opinion, there has been a grave mistake in constructing this chart of Isle Saypan. All that is assigned to its N.W. point should be in fact given to its South or S.W. point concerning the limits of the reefs and the small islands off Saypan. The soundings in the chart, where there really is no bottom with above 100 fathoms, may be those off Port Tanapag, which is erroneously represented enormously large. I do not know from whom such a mistake arose, for the French expedition of M. Freycinet made no plan of Saypan, and in his chart of the archipelago the old plan has been introduced; for he did not go to the island, neither in the *Uranie* nor her tenders, and they did nothing more than pass at a considerable distance from it. Certainly all this mistake must have originated in our old charts, as it appears in those of Don José Espinosa, copied and recopied with various dates in 1812, before the French expedition, which improved the chart of the Marianas.

But however this may be, the fact is the error exists, which it is very important should be corrected.

Between the N.W. shore of Saypan and the island of Managasa (the real island, not that shown in the charts), the reef forms a spacious harbour, called by the natives Tanapag. Its entrance is difficult, especially for sailing vessels, in a N.E. wind. It is formed by a very narrow channel, scattered with rocky heads, on which there is more or less water. But a vessel once in it will find it a snug and safe anchorage.

A survey of it is much wanted. I could do nothing more than take a look at it in a boat, and had not time even to make any sketch of it. It is as large as St. Louis d'Apra, and, like this port, is protected by a reef awash with the surface, on which the sea expends itself. It has not the inconvenient reefs which Apra has, as well as the sunken rocks; for, as far as I could see, Tanapag is entirely free from such dangers. It has a good depth, with a sandy bottom. The alcalde of Saypan, who, as well as the governor of the island, was with me when I went to see the port of Tanapag, informed me that a whaling ship drawing much water went there and refitted.

San Louis d'Apra, in Isle Guajan, and Tanapag, in that of Saypan, are the only two ports, properly so called, in the whole Marianas archipelago. The other anchorages are nothing more than bad roads, where the anchor lies under as much shelter as it gets from its buoy.

The English charts contain a sketch of another anchorage on the Eastern coast of Saypan, called Magicienne Bay, which has been copied into our chart of 1862. But this bay is nothing more than one of the many points of the islands where regular soundings are found, and where the anchor may be dropped when the wind is not blowing into it. In time of S.W. winds it may be a tolerable anchorage, but in N.E. winds it would be impossible for a ship to lie there, on account of the sea they throw into it. A vessel anchoring at Saypan in the months of August and September, which is the season of the S.W.

monsoon and hurricanes, I consider would be much worse off than in the port of Tanapag.

It appears to me that the latitude of all the points of Isle Saypan are about two miles in error, and that the whole island should be placed so much further South. The position of Garapan, according to my observations, and Magicienne Bay, according to the observations of Mr. Harvey in 1858, are the reasons from which I have come to this conclusion. But if this defect were corrected, and it is placed two miles further South, then the island of Saypan with reference to Tinian will be bad. It would be necessary, in fact, to reconstruct the chart of the whole group, which in fact is what wants more correction than any other part of the archipelago.

But to show the small importance of Magicienne Bay, I shall quote what the same officers have said of it: these are Capt. Vansittart and the master, Mr. Harvey, of H.B.M. steamer *Magicienne*, on her voyage from the Sandwich Islands to Hongkong, when she touched there in July 1858 short of fuel.

“This bay cannot be recommended to any sailing vessel, for the water is deep and the anchorage is so near a coral reef which surrounds the coast, that with a southerly wind there is no room to make sail. The bottom is coral with sandy patches, 30 fathoms depth and about three cables from a steep point at the entrance of the bay, shoaling rapidly to 3 fathoms close to the coral reef, which is nearly dry at low water. The *Magicienne* anchored in 18 fathoms, the S.W. point of the bay bearing S. 5° E. distant about two and a half miles; and the other steep point, with a grove inside the bay, N. 27½° W. about three cables. When the steamer borrowed towards the shore she had 9 fathoms rock and sand under her stern, and was only one cable distant from the reef; at one cable South from her buoy there was no bottom with 70 fathoms. The bay is well sheltered: it is only open from E.S.E. to South. During the few days which the vessel remained, the wind was light from S.E. in the day, and it was light from N.E. to N.W. at night.

The Farallon Medinilla is a dry rock, not very high above the surface, about two miles long, and half a mile across at its widest part. It is of the same height everywhere, and everywhere abounds in deep hollow caverns, formed by the wash of the sea.

Duperry's chart of 1819 makes a hummock of its South point, connected with it by a tongue of very low land, of which it also says there are doubts of its existence. On the 4th of January I passed 3½ miles to the eastward of this part and saw the whole connection, and all of the same height, without any appearance of such a hummock or its tongue of land. On the 13th of the same month I passed the same part very slowly on its western side, and although I looked very hard for it everywhere I could see nothing of it.

I must also add that it by no means agrees with the plan of this farallon made by M. Duperry, for I could find no resemblance between the farallon and what he represents it to be with the two before my

eyes. Either the farallon has grown since the plan was made, or the plan is a piece of invention.

From this part to the northern end of the archipelago the French chart made on board the *Uranie* is very poor indeed. From Guahan to Sunharon Roads in Tinian, the part over which they carried their triangulation and shore observations, the chart is very good. Yet all the rest of the archipelago, laid down on board with the ship under sail, seems to have been done in a hurry. And however good it may be in part, it is really bad in the full signification of the word, requiring much correction.

The governor of the Marianas, Don Felipe de la Corte, who, in a voyage made a few years before, succeeded in landing on the Medinilla, tells me that in the higher parts of it there are vestiges of a crater. It is undoubtedly a rock of volcanic origin. It is completely bare of vegetation, probably occasioned by the sea washing over it in heavy storms, although it is more than 50 feet above the level of the sea. In fact, there are marks of the sea everywhere on it.

Anatajan Island is five miles long and little more than one and a half wide, but very high. In the *Narvaez* we observed it on the 6th of January at forty miles' distance, although the weather then was not very fine.

The whole shore of it is precipitous, and has no other landing-place that I could discover than a small strip of beach on its southern end, where the rocks form a sort of bay, in which, nevertheless, vessels of a certain size cannot anchor, owing to the great depth of water and finding no bottom until close to the shore. Three mountains from thence are seen, one of which is said to be an active volcano.

The island is everywhere covered with trees and brambles, among which the cocoanut is in abundance.

Notwithstanding, as above said, there is no anchorage in Anatajan, it is possible from a detailed examination one might be found more or less bad, as the island was inhabited in the early time of its discovery by the Spaniards.

In this survey by the *Narvaez* it has been examined less than any other; for when it was done the weather was very bad, rain being about more or less in its neighbourhood from the 4th to the 12th of January.

Isle Sarignan is a round rock, tolerably high, covered with trees, and about two miles in diameter. It has a landing-place according to report, although I cannot say whether it has any anchorage. Its shore is very clean, and may be passed at a short distance. It has been formerly inhabited, but is now quite deserted.

I passed to the eastward of it during the night of the 4th and 5th of January under steam; and on the 12th and 13th I was on the western side of it under sail, passing it slowly.

There is nothing remarkable in this island. It is evidently of volcanic origin, whatever its figure, being conical with its summit rounded. If it has a crater, it must have been long since it was in action, for the

island is covered with vegetation, notwithstanding the books say that it has none.

On the 20th of January at daylight we put to sea, to go northward of the islands. At noon I was in sight of the Farallon of Medinilla and the Island of Anatajan; by the evening Sarignan was seen; and at sunset these three islands were distinctly visible, and the position of the vessel determined by them. Colonel Felipe de Corte, of the Engineers, was with me in the *Narvaez*, the governor of the islands, who had three times visited the archipelago, although he had not done so at Agrigan, as much from the small size of the boat as from the class of persons who navigated her. Besides having with him a good sailor as pilot for the islands, the pilot of the portmaster of Apra, who also had been several times over the archipelago without being North of Agrigan, and who knew the anchorages of the islands.

I had on board with me M. Duperrey's chart of 1819, done in the expedition of the *Uranie* round the world; the particular plans of the islands; the Admiralty chart, which is nothing more than a copy of M. Duperrey's; the Spanish chart of Coello, also a copy of the French chart, with the additional topography of some of the islands; and the Pacific Directions by Findlay; and these things were all I could get on my departure from Manila, and verily they were not much. Three good chronometers, carefully rated up to my departure at the end of December from Umata; a collection of instruments for navigation; so that I had obtained confidence in my work and knew my position at sea. But I had not with me the chart of the Marianas published by our office in 1862, for it had not reached Manila at the time of my departure in November 1863. This I have seen since my return, and I find it to be a copy of M. Freycinet's. It is also true that the labours of this Frenchman are the only ones that have been bestowed on the Marianas, if we except those of Malaspina at Guajan in the *Descubierta* and *Atrevida*.

I considered myself soon able to leave the islands, since, according to my instructions, the time was near approaching when I was to be at the Philippine Islands. Besides which, the stock of powder on board was not great, and I had no place for replenishing it. Therefore I went under steam, in order soon to get to the Pajaros Islet at the northern extreme of the islands, intending to return from there to Guajan under sail, availing myself of the N.E. winds, with which also I reckoned on returning to Manila.

The weather was very fine, the wind light, the sea smooth, and the ship running to the northward at 6.5 knots per hour. It is very well known that a steamer can easily reckon the time when she will arrive at any place. I had made my reckoning, and retired to my cabin at midnight, having allowed for an error perhaps of two miles, as there were no important currents to set me from where I should be at daylight.

I mention all these minutæ in order to show the way in which I found out the errors in the chart of the Marianas Islands, and why I consider that these errors are so considerable.

At 6h. in the morning I went on deck, where the governor had gone just before me. The weather was remarkably fine, the sky without a cloud, and the sea like a looking-glass. Two islands were seen on the port hand.

They were pointed out to the governor as the Farallon de Torres and Isle Guguan; but I observed with some surprise that Senor la Corte was not of that opinion. He considered that the one which I called the Farallon de Torres was Guguan, and what I called Guguan was Almagan; and his opinion from an authority by which they had often been seen and their names well known was one not to be depreciated.

I took their bearings and laid them down on the chart, and I was right.

At 8h. I took time for longitude, which also corroborated my opinion; besides, as this time approached, we were sighting the heights of Almagan ahead. I showed them to the governor, but he considered those heights were not Almagan but Pagan. Senor la Corte had landed on these three islands, and knew them by the names of Guguan, Almagan, and Pagan, while, according to the chart, I considered them respectively, the first Farallon de Torres, Guguan the second, and Almagan the third.

I called the pilot, who was on the fore-castle entirely unaware of our controversy, and asked him the names of the three islands. The Indian sailor confirmed the opinion of the governor. The three islands according to him were, Guguan, to the South, Almagan, and Pagan.

Thus I was in the minority. But at the same time I was certain I was right.

I returned to the bearings, and the position of the ship according to the three islands completely agreed with them and the bearings taken in the morning and with the longitude by chronometers.

Then I referred to Findlay's Directory, and the description of Torres and Guguan, and also Almagan, that he gives, agreed well with that of the islets before our eyes. So that I had no doubt that both the governor and pilot were wrong.

Notwithstanding all these proofs, the governor was vacillating, and he was dissatisfied, notwithstanding his confidence in my navigation. We went on nearing one of the islands, and as we neared it each new feature was recognized by the governor as having been seen by him in Pagan when I told him it was Almagan. As to the pilot, I told him he was mistaken, and like a good Indian he agreed with me. But his believing it was another matter.

At noon I observed the latitude and noted it, the ship being a short distance off the N.E. point of that island, on which was a volcano in action, throwing out thick volumes of smoke. The latitude confirmed all my previous conclusions, and the ship's position at noon also fully agreed with the rest.

There was no doubt that the island ahead of us was Alamagan: the reckoning, the bearings, and the observations agreed with Findlay.

This book says, on the N.E. end of Alamagan there is a conical mountain, an active volcano: that this mountain is separated by a valley from other mountains in the S.W. part of the island, and that to the South of the island there is a high rock close off the shore: volcano, valley, mountains, and rock.

There was no doubt then that this was Alamagan. After consulting the chart I went on deck, where Senor la Corte was looking at the island, from which we were about a mile; and riling him about his bad memory I told him that as soon as we had passed the N.E. point of the island we should see Pagan. This island, by the chart and Findlay, should be about nine miles N.N.W. of Alamagan, and would be known by having a rock about a mile to the southward of it.

We doubled this point with the volcano on it at about one p.m., with beautiful weather, not a cloud to be seen anywhere. But, alas, it was I myself who was all wrong. Pagan was no where to be seen. And yet it ought to be there before us, with its rock detached like a sentry, according to the chart, with its three mountains of different heights. The Pagan of the chart could not be a tongue which it might have lost. It was a veritable island; four or five miles long and two or three across, such a thing as was not likely to sink in the sea, like a stone thrown into it by a child on the shore. Nevertheless, there was no Isle Pagan; nobody could see it.

In the distance beyond the horizon, about forty miles, we could see in the mist of the sky a long island, but that could only be Agrigan. Pagan, therefore, has no existence. Before such evidence there was no other conclusion than that Pagan, as represented on the chart, had sunk in the sea.

The ship's head was laid for Agrigan on a course which would nearly pass over Pagan. At seven in the evening we stopped the engines off the S.W. coast of Agrigan, and I sent a boat on shore, as there were several inhabitants. This island, where we stayed several hours, was evidently Agrigan, and the evidence was undeniable from the inhabitants: so at one in the morning the engines were again set on, and we continued our course.

On the following day, the 6th of January, we passed Asuncion Isle, pretty close to its eastern shore, from ten to eleven in the forenoon, and by the evening we saw the Uraccas Islands. I delayed about them during the night, so as not to lose them, and at daylight on the 7th I continued my course to the northward, sighting the Farallon Pajaros, and being thus at the end of my ground, I turned round to examine it in the evening, standing under sail to the southward.

At daylight on the next morning, we were again off the Uraccas Isles, and in the evening off Asuncion, and arrived at Agrigan at nine the next morning, where I anchored without losing sight of the peak of Asuncion until reaching the anchorage, where it was concealed by the land of Agrigan. From this anchorage the volcano and mountain of the other island were seen, of which the name was doubtful.

On the morning of the 10th, I left Agrigan, and anchored in the
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evening at the island called Alamagan in the chart and directory, when the natives of the Marianas called it Pagan. I dropped anchor at dusk off its North shore and remained for the night. I recollected ten men at Agrigan and five others at Pagan, the name which I will apply to this island at present, although it is called Alamagan in the chart and directory.

At eight in the morning of the 11th, I left my anchorage off Pagan, and rounded the island to the westward, and on reaching its western point the other island was seen, that is called in the chart and directions Guguan, and by the natives Alamagan. I continued my course to the southward with little wind and clear weather. In the course of the day a third island was seen, and at dusk the islands of Pagan, (Alamagan of the charts,) Alamagan, (Guguan of the charts,) and Guguan, (Farallon de Torres of the charts,) of all of which the bearings were taken.

It should be mentioned, that not only the governor of the Marianas and the best pilot of the archipelago were on board the *Narvaez*, but also the fifteen men, all of them sailors, whom I had found at Agrigan and Pagan. They all agreed in calling Pagan the island which the chart called Alamagan, and on the North shore of which I had anchored on the evening of the 10th. Also in calling Alamagan the island which the chart called Guguan; and again, in calling Guguan that which the chart called Farallon de Torres.

The astronomical observations proved that the positions of the three islands were good on the chart. There was no error in position: the mistake was in names.

At daylight on the following day the islands in sight were, Alamagan, (Guguan of the chart,) Guguan, (Farallon de Torres of the chart,) and lastly, that of Sarignan.

It was evident then from this and what I had seen in my voyage to the North, that between the island Sarignan and Agrigan there are not more than three islands, although the chart shows four: that the island which has no existence is that which in the chart is called Pagan: that the other three are misnamed on the chart, to each of which has been assigned the name of that to the South of it: that the astronomical positions of the three which do exist are well laid down on the chart; and lastly, that the mistake consists in nothing more than in making one island altogether, and in misnaming the others.

These errors are to be found in all modern charts of the Marianas group, that are all copies of that made by M. de Freycinet in the French expedition of 1819 round the world in the *Uranie* and *Physicienne*. This expedition remained five months in the isle of Guajan for want of provisions, which they had to wait for from Manila, and while thus waiting the French employed themselves in making this chart of the islands.

They made the plan of Guajan and those of all the anchorages, making the tour of the island in a launch, and connecting their several points by triangulation. This work is undoubtedly well done. They

also constructed the plan of Rota and that part of the road of Tinian (Sunharon) at which place they arrived in their excursions. These last works are also very good, although inferior to that of Guajan. But their work of these plans did not extend North of Tinian.

The expedition having refitted and obtained their supplies from Manila, the *Uranie* left the port of San Luis d' Apra for the Sandwich Islands. She crossed the archipelago of the Marianas in her way, and rectified the positions of the islands as she passed them under sail without losing time. The plans of the islands called by them Farallon de Medinilla, Farallon de Torres, and Isle Guguan are nothing more than outlines made from the deck or the mast-head of the *Uranie*. And such appears to have been the source of the error.

The French, who left the Marianas not to return, carried no pilot for the islands, and it is not to be supposed that the officers of their ship knew much of the archipelago, allowing what is not very likely, that any of them had been there before. So that they made the general navigation, taking astronomical observations, applying them to the published chart, as is done everywhere.

It is most likely that the Spanish chart in six sheets of the Indian Ocean, published in 1812 by Don Jose Espinosa was on board the *Uranie*, in the second sheet of which is the archipelago of these islands, and which, in my opinion, was the best chart of these islands at that time. This chart shows two points without name between Sarignan and Guguan, marking rocks which are badly laid down, for they are placed S.W. of Guguan, when they really are South of that island.

Before the appearance of Espinosa's chart, two rocks were known to be thereabouts. It was also known that they were called by the name of Piedra de Torres, because a governor of this name was there and gave it to all the captains who arrived at Apra or Umata. When Torres left the governorship of the Marianas, the subject lay in the hands of his successors, and I believe the account of the rock still lies in the archives of Agana. It may therefore be supposed that while the *Uranie* was in the port of Apra, Senor Medinilla, the then governor of the archipelago, who took to his bed eight months, and showed the French commander and all his officers hospitality, which from a certain correspondence was bad enough, according to the French account, as may be seen in a book written afterwards by M. Arago, draftsman to the expedition, and brother of the celebrated astronomer, (a book which unfortunately has been translated into our language, when it has nothing to do with the account of the voyage by the commander of the expedition,) it is very possible, I say, that from Senor Medinilla the French knew of the existence of the Piedras de Torres.

When the *Uranie* left Apra, she ran to the northward in search of the Piedras de Torres, at the same time rectifying the islands of the archipelago on the chart. The small island near the northern side of Saypan, which in the Spanish chart appears as a dry Farallon, without a name, was nominated by them Farallon de Medinilla, in memory of

that generous governor to whom they were indebted for so many personal favours.

To the North of Sarignan should be the Piedra de Torres, as already said. But they did not find it, and passed seaward without seeing it, which is not surprising, because it is awash with the surface, a fact of which perhaps they were not aware. Assured of its existence, they connected the accounts received at Agana with the innumerable nameless rocks shown on the Spanish chart, not aware perhaps that these rocks are not seen except at low water of spring tides, and having no pilot on board who could inform them of their position, they saw Isle Guguan, which is very small. This isle being near the place where the rocks are, they supposed it was the rock they were in search of, a conclusion quite natural, although not corresponding in data: at the same time the Spanish chart of Espinosa contributed to the mistake, and they considered Guguan was the rock they were in search of, and named it the Farallon de Torres. This same name of Farallon de Torres shows also that the French were looking for such a rock among the Marianas, else how could such a name occur to them.

This mistake having occurred, and Guguan once being called Farallon de Torres, they naturally gave the name of Guguan to the first islet to the northward, which was Isle Alamagan. Then came another isle, which they called Alamagan, but which in reality was Pagan; and thus they described them with their new but wrong names. And Espinosa's chart could not rescue them from their error, for certainly all that is badly shown in it, and it is difficult to appreciate its position from its very small size.

To the North of this second isle a third was wanted, which was Pagan according to their account. But the weather became bad, and there was much misty rain. They thought they saw this isle in the clear to the North of their Alamagan, and they placed it accordingly in lat. $18^{\circ} 15'$ giving it the size of four miles, and marking a rock or small isle, which they thought they saw on its southern side. M. Freycinet says that he saw Pagan through the mist, in his account of the voyage of the *Uranie* and *Physicienne*, and in Findlay's book. Once laid down in the chart, with Agrigan followed by its correct description, and the corvette sailed, following up the archipelago, there was no opportunity for correcting a mistake.

The mistake of the French in taking a cloud for an island which they were looking for on a rainy day is nothing particular. Every navigator knows how common such appearances are at sea, and how easy a mistake of this kind can be made, even by eyes which are accustomed to see lands and clouds in the horizon.

From 1819, the year in which the *Uranie* made this voyage, no other vessel that I know of has visited the Marianas until the year 1864, when the *Narvaez* visited them. Several have touched at Guahan, (Guam,) but without passing North of that island, going further even to Tinian.—some English and American whalers, but little adapted for correcting charts compared with trying their luck at whaling. There is no cause for surprise, therefore, that the mistake

of the French chart should remain so long undiscovered, for in order to perceive it and in what it consists, a campaign like that of the *Narvaez* is necessary.

The French work was received, revised, and republished in Europe. The charts of all maritime nations were corrected by them, and we even, in 1862, have published a chart of the Marianas copied from the French. But the new copy which has recently appeared will not suffer from more errors than its original has done.

(*To be continued.*)

FORMATION OF AN ATLANTIC CYCLONE.

Take the Admiralty chart of the North Atlantic and strike a line from Cape Farewell in Greenland to Cape Finisterre, I name the space it cuts,—the line of cyclones. All that I have encountered in the Atlantic appear to take their rise in that neighbourhood, and travel in a S.E. direction. I am of opinion that all the great revolving gales which have swept the Bay of Biscay, may be traced to their origin here.

In summer and in winter these storms arise: during the former season their career is of short duration and less violent. Rain descends in lieu of hail, but their features are the same. In July, 1865, I encountered one of unusual violence in 46° N.

Recently I had an excellent opportunity of witnessing the *formation* of one in the same latitude. I made this singular remark, because from the appearance of the sky, the height of the thermometer, and the oppressiveness of the air, I felt assured many hours before its commencement, that such weather could not continue in the month of January without greatly affecting the surrounding atmosphere.

During several days I had been running before a moderate S.W. breeze. Our tropical companions, the Portuguese men-of-war, were still occasionally to be seen riding easily over the waves, an evident proof that the wind must have long prevailed in the same quarter, as these fragile creatures soon perish under the biting influence of northerly winds. It may not be amiss to mention here, the wonderful difference of appearance of the surface of the sea when under the influence of a N.W. wind to what it presents under a S.W. The former quickly rasps it into steaks of foam, while the latter passes over without leaving a trace behind.

For nearly twelve hundred miles the ship had run with squared yards. No one had doffed their summer clothing. The sky grew heavier, and there was a peculiar purple tint about it which threw a strange light on the sea and sails. No rain had fallen during the passage, and the air was evidently highly charged with electricity.

At 8h. a.m. on January 10th, the barometer stood at 30.10. The wind commenced to veer slowly towards the West, so slow indeed that it was not thought necessary to touch the braces until noon. During this time the wind had been increasing, and, at intervals, cold gusts passed by, which reduced the temperature greatly.

At noon, bar. 29.85, and steadily falling; wind rising fast, with showers of sleet.

At 6h. p.m., wind North, blowing furiously, having in ten hours veered twelve points. Bar. 29.50, a fall of six tenths.

When darkness had fairly set in, the trucks of the ensign staff and the main top gallant-mast head were topped with a pale green light; seamen always look on these unwelcome visitors with awe, and I must acknowledge that I have a strong objection to their company.

I had long felt assured that the ship was going towards mischief; and under ordinary circumstances I would at once have hove to. But I was so situated that nothing short of the certainty of plunging into danger warranted me in adopting such a course. Two hours more passed away amidst fierce squalls of hail and wind, when the sky cleared overhead, so that I could see the stars through the haze. The wind lulled, and for the moment I thought the gale had broken, and that I had been deceived in the warning of the barometer. The order had been given to set the close reefed fore topsail, when prudence suggested another look at the barometer. Still falling; I hesitated no longer: but before the trysail and fore staysail were fairly in, the ship was almost on her beam ends, under the pressure of a fierce squall, which covered the ship with spoondrift.

The evil I had anticipated was realized before morning, and anxious days and nights followed. Before I had been two hours hove to, the wind veered to E.N.E., and the barometer rose steadily. After that night I was not surprised at hearing that Queenstown Harbour was full of dismasted ships. A frigate would have but little chance of securing her sails at such a time. Seamen in the above mentioned locality should warily watch their barometers, if the wind shows a tendency to veer from N.W. to North, when bound East, and not be tempted by a leading breeze to run on too long, or they will assuredly bitterly lament their folly.

MERCATOR.

[It is evident the ship passed through the focus of a hurricane.—ED.]

THE SHORTCOMINGS OF THE MERCHANT SERVICE.

The great disasters which have taken place this year among our first-class steamships are enough to startle all who have any connection with the sea. Underwriters stand aghast as telegram after telegram arrives announcing unparalleled losses; rates of insurance have advanced in a manner calculated to seriously impair our export trade; and in some

cases parties have to effect this on the Continent, as our companies decline the risk which apparently attends certain voyages.

These disasters appear to show one of two things,—viz., either our ships are defective in strength and equipment, or our seamen in skill to handle them. I purpose to point out a few of the faults of the first named,—an easy task: the remedy is *une autre chose*. We all in our heart of hearts imagine we can excel our fellows in the art of government until we try it; when the result seldom comes up to our own, and certainly not to other people's expectations. This reasoning has induced me to think that the Nestors of the Board of Trade may after all be to some extent correct in their decisions on the multifarious cases which are constantly being dragged to their bar; still the general public are dissatisfied with the results of their labours, as they propose no remedy, but only punish the delinquents.

The shortcomings of the royal dockyards have been mercilessly dragged to light by a host of *patriots*, while those of private yards are wisely hidden from sight. A shipowner said to me the other day, "We never allow our captains to make reports;" thereby inferring that summary dismissal would be the result of their representations. Thus truth is smothered, and it is only when losses such as the *London* and *Amalia* (which fall on the public at large) take place, that attention is called to defects which exist to a dangerous extent in a large portion of our ocean merchant steamers.

In pointing these out, it is perhaps best to commence at the moulding-loft of the constructor's yard, where many models strike the eye from their singularity of form,—so singular indeed, that one wonders in the first place how a ship of such a form can possibly stand on her bottom at all; and secondly, when she makes a plunge in a heavy seaway, how she manages to rise again.

An American shipmaster, who recently crossed the Atlantic in a steamer of this class, remarked in a quaint way, "I am an old sailor, and expected to see water come over the bows, but never saw it on the poop with a head wind before; she went under water at both ends with every heavy pitch and scend." How dangerous must such vessels be when their stern deadlights are of inferior strength! The reason of this mischievous peculiarity is easily explained. To use a sailor's phrase, they have no bottom, but are all ends,—mere ropewalks; one foot in breadth to nine in length not being an uncommon proportion, while the depth from the poop and fore-castle beams to the skin often exceeds the beam. When deeply laden, can anything worse adapted than such a model be sent to do battle with the heavy sea of the Atlantic, laden as they often are with a cargo equal to their register tonnage, in addition to the weight of engines, boilers, coals, and stores, the only limit to which appears to be when every space below is crammed full? One would imagine that when this had been effected owners would rest satisfied; but no, coals, and in some instances iron, are recklessly packed on deck, and thus hampered she staggers forth like an over-laden beast of burden to take her chance. Coals on deck are looked on in the same light as blockade running; they may be successful in

saving all, then the gain is great; if washed or thrown overboard in bad weather, "better luck next voyage." No one but a practical man can conceive the dangerous position of a deeply-laden steamer with coals washing about the decks in bad weather, choking up scuppers and ports; many have foundered from this cause. In winter, deck loads of coal should be strictly prohibited.

There is no greater mistake in ocean steamship building than making the lines too fine. On perfectly smooth water such a form answers very well; but immediately a head sea is encountered, the disadvantage is strikingly apparent. The fore and after bodies are a perfect incubus on the middle one, evidently having a tendency to break off at a certain point,—viz., at the place where the first-named would, if cut off when laden with an ordinary cargo and bulkheaded watertight, sink immediately. Thus the middle section has to bear up the whole ship. Such a mode of construction throws a dangerous strain on certain parts of the hull, which is often perceptible by the working of the butt straps of the upper deck in bad weather about the position of the above-named places.

Ships of the build I am describing are generally constructed with a perfectly flat floor; so that with the slightest list any water which may be on the skin runs over to leeward, and increases it to a dangerous extent.

To complete the delineation of this pet class I mention the following fact. It is found after launching, sometimes before, that the ship will not stand up without ballast. But even iron would occupy a portion of the much coveted space, therefore *kentledge is laid on the outer skin between the frames* before the inner ceiling is laid. All this additional weight has of course a direct tendency to force out the plates from the frames, and throw additional strain on the ill-shaped turn of the bilge.

I believe that our seamen perform marvels of seamanship every year by successfully navigating such ill-conditioned craft in safety; for, by way of increasing the difficulties, listing affects the compasses to an uncertain and dangerous amount.

There is a point in the construction of iron ships to which I particularly wish to call attention, as the general public appear to be totally in the dark on such an important subject: I allude to the great difference in strength which exists between a first-class ship of nine years and one of fourteen years as registered at Lloyd's. Both are termed A 1; so that the uninitiated are deceived in the quality of the article, and unhesitatingly take a passage or ship goods on the simple fact of the ship being on the first letter. It is true that both are periodically surveyed by the officers of the Board of Trade, who carefully see that every requisition is attended to. But no attention to fittings can get over the first radical defect. I therefore think that, in justice to all parties, a revision of the classification is an absolute necessity. For a period extending over a quarter of a century our noble Cunard steamers have crossed the Atlantic without losing a single life. The Inman line are worthily following in their footsteps with ships which, humanly speaking, defy the elements. Men never feel

anxious for these, so accustomed are they to see them arrive when due. The foundering of one would be looked on as an event of more than ordinary interest.

In building, sufficient care is not exercised in proving the bulkheads watertight. Before launching each compartment should be partially filled, and recaulked where any leaks are perceptible, as they are frequently found useless in the hour of necessity. I also recommend that they should be made stiffer than usual, by rivetting athwartships bars between the vertical angle irons. A good rigid bulkhead greatly increases the strength of the hull; especially is this necessary in the engine-room, where pipes are often broken by a twisting strain.

Scarcely of less importance than strength of hull is the condition of the deck fittings. For the purpose of ventilation the upper deck of a steamer is generally seriously cut up, in addition to the large openings which are necessary for placing or working the machinery. It is a question beyond dispute that in numerous instances they are most improperly protected from the heavy seas which are so liable to break on board when steaming to windward. Should one be stove in or washed away, especially at night, to secure it becomes a task of more than ordinary difficulty, and is frequently impossible.

The evils of crank and ill-constructed steamers do not finish with the hull. The machinery, let it be ever so good, suffers in consequence. There is not a sufficient breadth of base to give the heavy inverted cylinders the required solidity when she lies over, the centre of gravity falls to leeward, and all the strain is thrown on the framing bolts to windward; frequently breaking them.

The greatest danger in this department to the safety of the ship lies in the careless or improper fitting of the many pipes which perforate the bottom and side, as Kingston's cocks are not used in the merchant service. Unfortunately the arrangements in many steamers are so dangerous as urgently to call for legislative interference. For example, it is not uncommon to find the main discharge pipe two feet below the lower water line; and by way of increasing the danger, or rather shutting out all hope of safety in the event of an accident or from ordinary wear, the stop-valve is frequently placed ten feet from the side. The reason for this may be at once perceived. To put the valve in its proper place a small portion of the coal bunker must be sacrificed, in order to put it against the ship's side, and that is a greater object to many than human life. Many an honourable member of the Board of Trade would feel queer if informed during a heavy gale that the only thing between him and certain death was a thin worm-eaten copper pipe, cased in so as to be inaccessible to all on board!

By the side of the main discharge pipe are placed the bilge delivery. When below the water nothing can be more unsatisfactory to an engineer, as he has no means of testing their working condition except by feeling with his thumb if they are *fanging*. The situation of the valves of the donkey-pump is often so badly chosen, that I have known some of the most important under the coals in the bunkers, so that

when they were out of order nothing could be done till they were cleared.

Cast iron is more employed than it ought to be in making the pedestals and seatings of sea-cocks. I have seen the former fitted so slightly in stoke-holes for ash-cocks, that a blow with a shovel would be quite sufficient to cause a fracture, and by way of increasing the danger, the sea-cock has been fixed above the stoke-hole plates.

Steamers are lost every year from unknown causes; all traces of some disappear with them; no one survives to tell the sad tale of the despair of drowning men, going hastily into eternity with the conviction on their minds that gross parsimony or reckless ignorance on the part of their employers was the sole cause.

The inquiry into the losses of the *London* and *Amalia* by the nautical assessors of the Board of Trade sheds no light on the cause of their loss; neither has it been instrumental in pointing out methods to guard against future disasters. Capt. Harris suggested that a tube should be screwed on the mouth of the sounding-pipe in bad weather, to keep the sounding-rod dry. I think that gentleman has never made voyages in deep-laden screw steamers, or he would see the impracticability of the plan. It would be certain to be broken when placed in an exposed situation, either by a sea or some object striking it; and however desirable it may be to know how much water is in the "well," it is of greater consequence still to prevent any finding its way there, and, when unfortunately there, efficient pumps to clear it out quickly are the grand necessity.

Mr. Campbell, the eminent Liverpool surveyor of the Board of Trade, suggests that the spinder of the sea-cocks should be led higher up than usual, in order to be under the control of the engineer if the engine-room should be swamped. The suggestion is a good one, provided care were taken to guard the rods against accident. I am, however, of opinion that the extension of his plan to the pipes of the various compartments would cause more danger than advantage, since they must be kept in the most efficient order. Then the question arises, Who is to do this? The carpenter has already sufficient to attend to in the execution of his multifarious duties as a mechanic; the engineers would object to be working at things not intimately connected with their own department; the remedy therefore would be worse than the disease.

Many fatal accidents have occurred from the pipes being cut through by the washing up of the stoke-hole plates. I have often been astonished that they are not secured to the frames by nuts and screws, removable at pleasure. Frequently they have to be kept down with shores,—a task of no small difficulty; for when once out of place, coals and water swashing about render it almost impossible to get them into their seats again.

The rig of many of our Atlantic steamers is simply absurd, rendering them in the event of an accident to their machinery, as the *Times* remarked of a dismantled dragoon, "helpless as a goose on a turnpike

road." The masts are so badly proportioned and placed that they broach to against the helm, and lie helplessly in the trough of the sea.

Another great evil is the want of disconnecting gear, without which no steamer should be permitted to sail on long voyages. In the event of a break down to the machinery, it is of importance that the ship should be readily put under sail; where the shaft is permanently coupled it may take two days to free it.

I wish in concluding this short article to offer a word of advice to my brother seamen on the handling of deeply laden steamships. I believe that the majority of accidents of decks swept and skylights stove occur from the pernicious practice of keeping the engines moving slowly ahead when hove to. By this manœuvre the ship not only receives the full force of the advancing wave, but flings herself against it. The utmost efforts of man's skill cannot bring ships equal to the conflict for any length of time; they succumb under the giant force brought against them. Could Plymouth Breakwater be got under way and sailed into the Atlantic, it would break up under the force of the winter gales. I therefore recommend that the engines should be stopped and fires banked or put out when prudence points out that no way can be made without incurring serious risk. There is no reason why steamships should not heave to as easily under canvas as sailing ships. Indeed I have found from experience that they do so, and always adopt the plan. The reason is obvious; the ship retreats before the advancing wave by making what sailors term leeway; consequently the force of the blow is much lessened when the wave strikes the hull. It has also occurred to me that the drift of the ship through the water gouges out a species of pit, into which the ship falls earlier than it would do in unbroken water, just as we may observe them break far from the shore during heavy gales in six or seven fathoms water. Their bed has been disturbed.

A word about the *personnel* of the merchant service. It is the custom to set down the majority of its officers as a low ignorant set. Shipowners in many of our great ports lead the van in this particular, by treating them more like servants than gentlemen; in fact, they do not wish them to have a liberal education, or as gentlemen of the last generation said, when it was proposed to teach their servants to read, "You will make them above their business." Coming to sea as they generally do at an early age, their opportunities of acquiring a good education are necessarily limited. "Watch and watch" at sea, and subject to all calls in addition, does not dispose men to study, even when they have a fitting cabin to do so. In port their duties keep them at the ship throughout the day. "Work, work, from weary chime to chime." Still, in defiance of these disadvantages, a good proportion are well able to take their position in society.

An era is now approaching which demands the serious attention of all men who take an interest in the future of the mercantile marine of this country. For years we have drawn on the capital of our seamen without making any provision to keep up the supply, and this in the face of a vastly increased and still increasing commerce. The con-

sequences are already severely felt in the difficulty which is experienced in obtaining good seamen. We constantly read of the bad conduct of ships' crews in times of peril, and the disasters which occur from their incapacity and misbehaviour. When we consider that crimping under another name is carried on in its fullest extent no one can feel surprised at such results. The men are brought on board when the ship is leaving dock, many are hopelessly drunk, and perhaps only come to their senses when outside the port. Foreigners who are unable to speak a word of English are often shipped as substitutes; their advance note of course going to the lodging-house keeper (*alias* crimp). Imagine a ship in a heavy gale with such a crew, some will not come on deck at all. This charge is brought against the seamen of the ill-fated *London*, but the report that the delinquents were Dutch is in my opinion a gross libel on that brave people. I never yet found a Dutch seaman backward in the most critical hour of danger, and their patience, sobriety, and contentment, under all circumstances, far exceed that of the dirty grumbling refuse who now compose the majority of many crews. The men who had the indelicacy to parade themselves on the stage of penny-gaffs for a few shillings are precisely the sort who may be expected to be found wanting in a time of trial; such as these are would libel the bravest, if only to hide their own shortcomings.

MERCATOR.

WRECK AND WRONG AT SEA.—No. 2.—*Remarks on Marine Insurance.*

May 11th, 1866.

Sir,—In a short paper you did me the favour to insert in the *Nautical Magazine* for April, I suggested the importance of making a distinction in *lading* between passenger ships and ordinary carrying vessels, and the reasons for this distinction were briefly given.

I also stated what appeared to me to account for much of the *wreck and wrong at sea*, with which our nautical annals are filled,—namely, the *one-sided* view of their duties so commonly taken by commanders of vessels; and there was in that paper another subject only glanced at, which shall now be briefly considered, and which may be called the mischievous side of marine insurance. The reason for so calling it is, that it takes from the owner his risk, and from the commander his proper nautical control; for while ships can be sent to sea at the risk of underwriters, who have no voice in the management, the owner is not likely to listen to the objections of the commander, as he would do if all were at his own risk.

Let us, by way of illustration, instance the case of the ill-fated *London*, which foundered in the Bay of Biscay in January last, for this vessel's history embraces all the points I desire to bring to notice. And in recalling her calamitous loss, it is not without a hope that in

the loud sad requiem which swept over that ocean grave, where so many loves and hopes lie buried, may be heard a voice of warning to all "who do business in the great waters."

We will suppose the *London* to be at Plymouth, the last port in which she cast anchor. There is a valuable ship laden with cargo and with a full complement of passengers, about to start, in mid winter, on a voyage to the other side of the globe, and, although a *very uneasy feeling existed about her being over laden*, there was no one to give this well founded mistrust effect and have the ship lightened.

With whom should rest a decision of this kind but with the captain? and it is impossible to doubt that had he had the *entire control* of the ship apart from all considerations but those affecting her perfect seaworthiness, he would not have gone to sea as he did. And who shall say that he did not leave port without some misgivings?

Let us consider the parties *principally* concerned in the ship; in other words, at whose risk does she proceed to sea?

If the ship be uninsured and the whole risk rests with the owner, it is obviously against his interest to let the ship go to sea in any other condition than that of thorough seaworthiness; and in such a case should the captain report that the ship is too deep either for safety or for speed, the owner would consult his interest by lessening the risk and having the ship lightened. But on the other hand, and in an entirely different case, if the owner can load his ship, and fill her with passengers,—if he can collect all the passage money, and can insure ship and freight to the full,—in a word, if he can do this and send his ship to sea at the risk of the underwriters, he is not likely to find it so much to *his interest* to attend to an unfavourable report from the captain.

So much for owners; and when it is considered that in some cases they are *actual gainers* by the loss of their ships, it is not necessary to do more than indicate what evils unlimited marine insurance has produced, and *the only way of remedy* appears to be the passing of a law that no ship be insured beyond two thirds or three fourths of her value.

The party really concerned in the safety of an insured vessel are the underwriters, and it seems a curious anomaly in our mercantile system, that there should be so much *risk* where there is so little if any *control*.

There is reason to think that a law limiting the insurance of ships to two thirds their value, would not only remedy existing evils, but have the effect of improving the entire order of seamen, from the captain downwards: for it would answer owners to have an interest in the character and ability of the captains, officers, and crews of their ships, which they have not at present.

Is there not something to be said in favour of passengers having the power, in cases of *doubtful seaworthiness*, to appeal to the authorities of the port for the purpose of having a survey of the ship by a competent and disinterested party?

With regard to *overladen* ships it is to be observed that since the great alterations in our naval architecture, which have replaced the old short and fullered beamed vessels by long and narrow ones, it is no longer safe to load as in previous times, and for reasons which shall be given in another paper.

W. C. P.

To the Editor of the Nautical Magazine.

ROYAL NATIONAL LIFEBOAT INSTITUTION.

A meeting of this institution was held on Thursday, 3rd of May, at its house, John Street, Adelphi; Earl Percy, P.C., in the chair. There were also present, Thomas Chapman, Esq., F.R.S., V.P.; Sir Edward Perrott, Bart., V.P.; John Griffith, Esq.; Admiral M'Hardy; W. H. Harton, Esq.; Admiral Hall, C.B., F.R.S.; Stephen Cave, Esq., M.P.; Admiral Bullock; Captain Richards, R.N. Hydrographer of the Admiralty; Captain Walker, H.C.S., Board of Trade; and Richard Lewis, Esq., Secretary of the Institution.

The minutes of the previous meeting were read.

£18 15s. was ordered to be given to the crew of the Mundesley lifeboat, for going off on the 7th and 8th of April, during stormy weather, and saving the crew of eleven men of the barque *Elizabeth and Mary*, of Whitby, which had stranded on the beach between Mundesley and Bacton.

The Birmingham lifeboat No. 1, stationed at Caistor, had succeeded in bringing to port the steamer *Corbon*, of Newcastle, and her crew of twelve men. She had been disabled near the Cockle Sand during hazy and stormy weather, on the 7th of April.

A reward of £6 was likewise granted to the crew of the Rosslare lifeboat of the institution, for going off and saving the crew of six men of the smack *Shamrock*, of Wexford, which had become a total wreck on the North end of the Dogger Bank. Soon after the rescued crew were in the lifeboat, the smack completely disappeared.

A reward of £6 was also given to the crew of the Henry Nixson lifeboat, at Maryport, for going off and assisting to save the lives of three men and the master's wife from the schooner *Treaty*, of Goole, which had gone ashore on Dub Mill Scar, eight miles E.N.E. of Maryport.

Rewards amounting to £55 were also given for valuable services rendered during the late gales, by the crews of the following lifeboats of the institution, viz. :—at Great Yarmouth, Bude Haven, Dundalk, Winterton, Palling, Courtown, and Wexford.

The silver medal of the institution and £2 were voted to Mr. John

Bunt, officer of coast-guard, and £12 to eight other coast-guardmen at Sandown, Isle of Wight, for putting off during a very heavy gale of wind and rescuing, at considerable risk of life, five of the crew of the Swedish brig *Fahli Bure*, of Sundswall, which was wrecked off Sandown on the night of the 24th of March last.

The silver medal of the society and £1 was likewise granted to Mr. John Kernish, commissioned boatman of coast-guard at Bowness, Cumberland, and £1 to two other men, in acknowledgment of their intrepid conduct in rescuing, at considerable risk of life, a man from a very perilous position off Drumburgh Marsh on the 16th of April.

Various other rewards were also granted to the crews of shoreboats for saving life from different wrecks on our coasts.

Payments amounting to upwards of £3,000 were ordered to be made on various lifeboat establishments.

The thanks of the institution, inscribed on vellum, were voted to Admiral Ryder, in acknowledgment of his cordial and valuable co-operation whilst occupying the office of Controller-General of Coast-Guard, which he recently vacated on promotion.

A contribution of £310 had been received from the working men of Edinburgh, to defray the cost of a lifeboat; also £435 collected for the same purpose from the grocers in England, through the indefatigable exertions of Mr. William Read. £200 has also been received on account of the Civil Service lifeboat, promoted by Mr. J. A. Dow and Mr. Malcolm Goldsmith. Various other lifeboat funds had also been recently received by the institution.

During the past month new lifeboats had been sent by the institution to Hayle on the Cornish coast, and to Braunton, near Barnstaple; both boats were the gifts of benevolent persons to the society.

The Hanseatic Government had applied to the institution, through the Board of Trade, for information to enable them to establish a lifeboat society in that country, on of the plan the National Lifeboat Institution of England.

It was reported that the institution had now eighteen lifeboats building for it. The boats contributed by the people of Huddersfield and Liecester were to be exhibited in those towns on Whit-Monday, on the way of the boats to their stations. The institution had now nearly one hundred and seventy lifeboats under its charge, and their number was gradually increasing.

Reports were read from the inspector and assistant-inspector of lifeboats of the institution on their recent visits to the different lifeboat stations of the society on the coast.

The proceedings then terminated.

THE BOMBARDMENT OF VALPARAISO.

The following particulars are published in the New York papers relative to the bombardment of Valparaiso by the Spanish fleet on the 31st of March.

The advices bear date Valparaiso, the 3rd, and Callao, the 14th of April :

On the 27th of March Admiral Nunez informed the Chilian government that despatches had been received from Madrid appointing him minister plenipotentiary, *vice* Admiral Pareja, accompanied by instructions to insist upon the fulfilment of the original terms of settlement prescribed by his predecessor, or, in lieu of which, to bombard the city of Valparaiso. He also notified the foreign ministers of the course he was directed to pursue. From the Chilian authorities he was met with the reply that the republic would never humble herself to the required degree. She would not be compelled to salute the Spanish flag, nor to apologise for imaginary offences against the government of her Catholic Majesty. Upon the reception of the reply Nunez immediately notified the authorities of Valparaiso that he would allow them four days' time in which to remove the non-combatants, preparatory to the bombardment of the city. He notified the foreign residents to save their moveable property in the interim, as nothing beyond a compliance with his demands by the republican administration could change his determination as to the time of the attack. It could scarcely be comprehended by the peaceful inhabitants of the place that Nunez would execute his plan of destroying a defenceless city—especially one in which property held by foreign capitalists was so largely predominant. A meeting of foreign ministers was immediately held, and a request sent by them to Nunez that he would reconsider his determination and allow the city to "still exist." His reply was that his orders were explicit, and could not be disregarded. The American minister, General Kilpatrick, was indefatigable in his efforts to bring about a reconciliation between the belligerents, but his labour was thrown away. Plans of settlement were proposed; the most feasible of which was that the Spanish flag should be elevated over the barracks at Valparaiso, the Chilian flag placed at the mast-head of the admiral's ship *Numancia*, and a simultaneous salute fired to both. This question disposed of, the others would have been of easy solution. The Chilians agreed to this mode of settlement at once; but the haughty Spaniard would not retreat one inch from the position he had taken. It soon became evident that nothing short of absolute foreign intervention could avert the threatened calamity, and the non-combatants and most portable articles of merchandise were then removed beyond reach of the enemy's guns. Seeing that all previous efforts to save Valparaiso were useless, General Kilpatrick proposed to the English and French *chargé d'affaires* to see what virtue there would be in shot and shell from the men-of-war of the several powers then lying in the harbour. The American commodore (Rodgers) and the American minister jointly proposed to anchor the different fleets between the Spanish squadron and the city; and in case hostilities were commenced, they also agreed that if the British fleet would fire the first gun, the American men-of-war would assume all further responsibility. British interest in Valparaiso is much more extensive than American—in fact, it is four times as great—and the American representatives were unwilling to assume the entire responsibility on the part of the American government alone. It was also proposed that the American and English ships should fire simultaneously on the Spaniards, and together compel them to desist; but to each and every proposition to this effect a negative reply was given.

All foreign opposition to the Spanish having thus vanished, Nunez prepared to attack the city. Early on the morning of the 31st of March (the four days' grace having elapsed) he notified the foreign squadrons to withdraw beyond range of his guns. The English squadron was the first to comply with the notification; while, at the last moment, the American ships slowly and sullenly moved from their anchorage to a safer place. The *Monadnock*, a monitor, which alone could have totally annihilated the entire Spanish squadron, brought up the rear, and as she passed by the attacking fleet her 500-pounders seemed to dare the Vandals to a trial of strength and skill. Shortly before 8h. a.m. the enemy's vessels began to manœuvre. The *Numancia*, *Resolucion*, *Villa de Madrid*, *Blanca*, *Vencedora*, and *Paquete de Maule* were under steam. The flagship *Numancia* took up her position immediately in front of the mole, and about a mile from shore. At 8h. 10m. a.m. she fired two blank shots as a warning to the non-combatants of the city that the attack was about to commence. The latter, taking advantage of this circumstance, left their houses and posted themselves on the heights overlooking the place, and out of range of the enemy's guns. In the interim the Spanish frigates were posted as follows: the *Resolucion*, fronting the railroad station; the *Blanca* and *Villa de Madrid*, before the customs warehouses; and the *Vencedora*, opposite the Calle del Cabo. The *Numancia* remained outside the line thus formed, signalling orders to the attacking vessels. By 8h. 30m. everything was in readiness for the attack, so early had the preparations begun and so rapidly had they been completed. At 9h. a.m. the first shot was fired upon the city. It proceeded from the *Blanca*, and was aimed at the customs warehouses. Accompanied by the cry of "Long live the Queen!" the firing soon became general. For three hours and a half the bombardment was continued. Not an opposing shot was fired in defence of the city; not a hand was lifted in opposition to the Spanish squadron. With the means at their command, it was useless for the Chilians to resist the attack. The destruction of property was immense. The warehouses, containing millions of dollars' worth of foreign merchandise, were almost totally demolished. It is here that the bombardment affected foreigners so generally. All the public and many private buildings were completely ruined. The Hotel de la Union was fired by a red-hot shot, and all that portion of the city in its immediate vicinity was consumed by the entire conflagration. To complete the entire destruction of the customs warehouses, a fire broke out about 11h. 45m. a.m., which speedily enveloped the whole of them in flames. After firing between 2000 and 3000 shot and shell point blank into the city, the flag-ship *Numancia* gave the signal to withdraw. The last shot was fired at 12h. 30m. p.m. The frigates immediately got under way after the firing had ceased, and proceeded to the anchorage from whence they came in the morning. The foreign fleets resumed their old positions, and on the water everything soon bore its usual appearance. Immediately after the firing ceased, the people on the heights rushed into the city, and strove to check the conflagration, in which they partially succeeded. Owing to the fact that nearly all the inhabitants had left the place, the number of killed and wounded was comparatively small. The exact figures have not been given. It was not well known what the future plans of Nunez might be, but it was generally believed that he would ravage the coast, and proceed to do at other cities what he had done at Valparaiso. It was feared that Caldera, Coquimbo, and other places would in turn be bombarded.

The *Mercurio* of Valparaiso remarks that it is at a loss to see how the English and French chargé d'affaires can justify themselves to their respective governments, for having calmly and indifferently stood by while the Spaniards were burning eighteen or twenty millions worth of property belonging to their countrymen, possessing as they did ample means to prevent it. The damage to government property is represented not to be very serious—not over

1,000,000 dollars. Part of the Custom-house storerooms were burned : in this fire the French lost perhaps 15,000,000 dollars. The Intendencia, the Exchange, and railroad station were injured, but are left standing. It is stated that the property of British subjects amounts to 180,000,000 dollars in Valparaiso. The French interest is much less, but much more than the American. The loss of life is given at one man and one woman killed, and four soldiers wounded, on the Chilian side. The fire at first threatened to take great proportions, but by the activity of the fire companies of Santiago and Valparaiso the fire was put out in eighteen hours. They worked all night heroically. Of the 2000 balls and shells thrown by the enemy only 250 did execution. Their calibre was 32 or 36 and 68 lbs. The Peruvians were wild with excitement over the news of the bombardment of Valparaiso. Great fears were entertained for the safety of foreigners, and especially of Spaniards, residing in Lima. So terrible was the excitement of the lower classes, that they threatened an indiscriminate massacre of Europeans, and did not even spare Americans in their denunciations. The feeling was somewhat alleviated by the arrest and imprisonment of all the Spaniards in the city. Yet, fearing a repetition of the terrible scenes following the overthrow of Pezet, the authorities used every precaution to prevent it, and the arrest of the Spaniards removed the pretext for an outbreak. At Callao all was confusion. The warehouses were being relieved of their contents ; merchants were sending their goods to Lima ; and, in fact, every one seemed to be possessed with the insane fear that Callao would be the next place of attack. But the chances are that Nunez will turn his attention towards easier and less dangerous work before he approaches that city. If they possess the requisite bravery, the Peruvians have the means of returning hard knocks for those received. Admiral Pearson had arrived at Callao, but immediately sailed in the *Suwanee* for Valparaiso.

The following protest of the consular corps in Valparaiso was sent to Admiral Nunez through the American consul :

Valparaiso, March 27.

The undersigned, consuls resident in Valparaiso, have informed themselves of the note which, under date of this day, the chief of her Catholic Majesty's squadron blockading this port has been pleased to address to the consul-general of Portugal, enclosing a copy of the manifesto transmitted by said chief to the diplomatic corps resident in Chili. Informed of its contents, we cannot otherwise than manifest to your excellency with what deep regret we have seen that your excellency has adopted the resolution of proceeding to bombard Valparaiso and any other part of Chili, giving only the period of four days to the foreign residents in which to place their lives and property in safety. It is not our intention to enter into a discussion of the motives which your excellency adduces to justify the adoption of so extreme a measure, but it is our duty to make every effort to cause you to desist from an act which must be the cause of ruin to the interests of thousands of our constituents herein resident. International law does not permit the bombardment of undefended places, and the destruction of ports like this. It is condemned in itself ; but in this particular case it will be more so, since Spain upon all occasions has solemnly declared in the present war that she will always respect neutral property, and will endeavour to avoid injuries and damages of the war to neutrals. Under the shield of this promise the foreigners resident in this city have continued in their peaceful avocations, confident that Spain would faithfully comply with such solemn pledges. The port of Valparaiso, your excellency well knows, represents throughout its entire extent valuable neutral interests, and its destruction would fall almost exclusively upon subjects of powers friendly to Spain, while the country itself will scarcely feel the effects of so violent an act. The bombardment of Valparaiso may be rather considered as an act of

hostility against neutral residents, since its effects will be felt by them alone. History will certainly not present in its annals any event which can rival in horror the picture which will be presented by the bombardment of this city. It will be an act of vengeance so terrible that the civilised world will shudder with horror in contemplating it, and the reprobation of the entire world will fall upon the Power which may have carried it out. The burning and destruction of Valparaiso will be the certain ruin and destruction of a flourishing city; but be your excellency well persuaded that it will also be an eternal blot upon Spain. The city of Valparaiso will rise from her ashes, but never will the stain be wiped away which sullies the flag of Spain if your excellency persists in carrying out so cruel an attempt. If, notwithstanding all, your excellency carries it out, we shall find ourselves under the inevitable necessity of protesting in the most solemn manner, as in effect we do now protest, against such a proceeding, as against the interests of our constituents, reserving to our governments the right to reclaim from the government of her Catholic Majesty the enormous injuries which their citizens will suffer. We protest, in the face of the civilised world, against the consummation of an act which is in contradiction with the civilisation of the age.

This was signed by the consuls of Portugal, Prussia, Denmark, United States, Hanover, Austria, Bremen and of Oldenburg, Switzerland, Colombia, Brazil, Italy, Holland, Guatemala, Sweden and Norway, Hamburg, Salvador, and the Sandwich Islands. The consuls of England, France, and the Argentine Republic united in another protest to Admiral Nunez, reiterating the sentiments expressed in the above.

The statements made in Parliament by the Duke of Somerset and Mr. Layard show that if the withdrawal of Admiral Denman from before Valparaiso when that city was threatened with bombardment was a fault, the party to be blamed is the British government. The policy of neutrality between Spain and Chili which ministers deliberately adopted is a fair subject of discussion; but it is anything but fair to censure a high-minded officer for a strict and intelligent obedience to the orders which he had received. A naval officer on a foreign station who is suddenly called upon to act in doubtful and unforeseen circumstances ought to be able to reckon on a generous and liberal appreciation of his conduct on the part of his countrymen; but he would deserve the strongest censure who should disregard his instructions in the very case for which they were intended to provide. Trite and obvious as is this maxim, it is ignored by some of our countrymen, who, it seems, would have been glad to hear that Admiral Denman had taken the liberty of setting aside his instructions, and of acting upon his own view of what the honour and interests of his country required. If our officers should ever come to think thus of their duty, and never suffer any wrong to be done which they had the physical means of preventing, we should have almost as many foreign policies as admirals on foreign stations, and should never know when we were at peace. We see a picture of the officer who is ready to "take all the responsibility" of his action in the report of Commodore Rogers, the American naval commander at Valparaiso, to his official superior. This officer has been much praised in England, as well as by some of our countrymen at Valparaiso, at the expense of Admiral Denman. It is on record that Commodore Rogers was ordered by his

government to observe a strict neutrality; but he states in his letter that he was ready to sink the Spanish flagship, in order to prevent the bombardment of Valparaiso, if Admiral Denman would co-operate with him. We may safely presume he would not have done so without the consent of General Kilpatrick, the United States minister to Chili, who, however, does not seem to have contemplated taking any part beyond protesting against the bombardment. Admiral Denman, in his official report, negatives the assertion that he declined the co-operation of Commodore Rogers, and, with all respect to the latter officer, we prefer to rely on the accuracy of our own countryman. But there is no reason why Commodore Rogers should not draw his own portrait, and here it is :

In offering to go beyond the letter of my instructions to observe a strict neutrality, I acted upon the supposition that neutrality among the nations did not preclude all well-directed efforts to keep the peace among them; that as a peaceable citizen is not obliged to stand by inert while another is suffering from the unlawful violence of a third person, but may justly interfere with force to prevent an infraction of the laws—a murder, for example—so a nation, witnessing the like disturbance among her sister nations, need not rest absolutely impassive, but with sincere neutrality might interfere with force if necessary to keep the operation of belligerents at least within the law for the protection of neutral persons and neutral property. I considered that Spain had lost her colonies under a stringent colonial policy and religious intolerance. In the course of time, encouraged by the more liberal laws of a state of freedom, foreigners had been induced to settle in the country, and to embark their capital in commerce and other industrial pursuits. Towns had sprung up along the coast, railroads had been built, and other material interests developed. Ideas as well as manufactures had been introduced, the wealth and intelligence meanwhile remaining with the foreigners. At last Chili had reached the goal in human progress, marked by the establishment of religious toleration; and Spain, on a point of etiquette rather than from any great political end, as I believe, proposes to burn the property and destroy the towns along the sea-coasts as far as she sees fit. Is it right that she should thus exercise her power of destruction, unrestrained, along the shores of this continent? The mode of warfare which Spain proposes is terrible; but it seems to me such as will provoke private animosity rather than coerce national will, and therefore that it is not directed to its legitimate end, and consequently that such warfare might be resisted.

It is reported that when Talleyrand was ambassador at this court a lady having asked him the meaning of non-intervention, he replied, "*Madame, non-intervention est un mot diplomatique et énigmatique, qui signifie à peu près la même chose qu' intervention;*" and Commodore Rogers appears to have been of the Frenchman's opinion. Neutrality in his view was consistent with deciding that one of the belligerents was in the wrong, and thereupon attacking him. If a nation professing neutrality may interfere by force, and sink, burn, and destroy the ships of one of the parties to a war—what more remains to be done after a declaration of hostilities? These political admirals and generals—who know better than the President, or the Secretary of State, or the Senate what the country ought to do, and are ready to do it, trusting to the people to "endorse" their action—have in times past

been one of the greatest curses of the United States, and we must protest against any attempt to set them up as examples for our officers.

For the sake of justice it should be clearly understood that in no case can the inactivity of the British fleet, when outrages such as the bombardment of Valparaiso are perpetrated, in the least degree lessen the responsibility of the perpetrators. It is not to be supposed that Great Britain sanctions every wrongful act which she could, but does not, prevent. Independent nations must answer for their own deeds and take all their consequences. The whole and undivided infamy of this business rests upon the government of Spain. At the same time we believe that the English public is getting to think that something ought to be done by the combined action of the great maritime Powers to put an end to these repeated and unwarrantable Spanish expeditions, which are becoming a general nuisance.—*Daily News*.

Nautical Notices.

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

PARTICULARS OF LIGHTS RECENTLY ESTABLISHED.

(Continued from page 273.)

Name.	Place.	Position.	F. or R.	Ht. in Feet	Dist in Mls.	[Remarks, &c. Bearings Magnetic.]
20. Newcastle Harbour	Australia	.....	..	..	..	See p. 274 of May number.
21. Margarita Moie	Genoa Gulf	44° 19-7' N., 9° 12-7' E.	F.	35	10	Est. 1st January, 1866.
22. Ut Grunden Shoal	Kalmar Sd., Sweden	56° 10-1' N., 16° 16-1' E.	F.	26	8	Est. 18th April, 1866. (a.)
Port Colberg-münde	Prussia, Baltic Sea	54° 11-9' N. 18° 23-0' E.	F.	25	8	Est. 1st April, 1866.
23. Messina	Sicily	Fort Campana	F.	..	..	Est. 1st June, 1866. Altered from Red to F. Red.
.....	.....	Punta Secca	F.	..	..	Est. 1st June, 1866. Altered from White to F. Red.
24. Marseilles	Port Napoleon, Estr. France S.C.	.....	Fl.	41	10	Est. 1st May, 1866. (b.)
25. Port Banjoe-wangie	Java, Saly Strait	.....	F.	41	8	Est. 4th December, 1865. (c.)
Isaki Point	Kiusi Island N.E. point, Japan	.....	F.	..	12	Observed December, 1865. A wood fire in a shed.

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

(a.) 22.—The vessel is painted red with the words *Utgrunden* in large white letters on her sides, has two masts, carries a red ball at each mast-head, and lies about four cables S.W. of the southern spit of Utgrunden. A bell is sounded in foggy weather.

She will be placed in her position every year as soon as all danger from ice has ceased, and will be removed when the state of the season no longer admits of her remaining.

(b.) 24.—The light is a *fixed* white light, varied every *minute* by a *red flash*. It is elevated 41 feet above the mean level of the sea, and in clear weather should be seen at a distance of 10 miles.

At the same time, the fixed red provisional light, at the salient angle of the outer jetty of the Napoleon basin, would be discontinued.

(c.) 25.—In entering the roadstead of Banjoewangie, steer in with the light bearing West, and it will lead clear of all dangers.

HARBOUR OF ST. THOMAS,—*Virgin Islands*.

May 1st, 1866.

The Kior Rock has been scraped down to twenty-four feet below the surface.

W. W. KIDDLE, *Commander,*
W. I. & Pacific s.s. "West Indian."

PROVIDENCIAS ISLAND,—*Caiicos*.

May 6th, 1866.

The reported reef marked in sheet 2 of the West Indies off the North point of the island, exists. It was breaking heavily at a considerable distance from the shore when I passed. The wreck of a large ship, with lower masts gone, was on the inside part.

W. W. KIDDLE.

SHOAL NEAR CAPE ST. JOHN,—*West Coast of Africa*.

H.M.S. *Espoir*, Commdr. M. S. L. Peile, grounded, December, 1865, on a shoal near Cape St. John, northward of the River Gaboon, on which there is about 11 feet water; it lies N.N.E. $\frac{1}{4}$ E., distant four miles from Cape St. John, two miles seaward of a small green island, and three miles from the shore. There are 4, 5, and 7 fathoms water N.N.W. of the shoal. Vessels passing the Cape should give the small green island a berth of 3 or 4 miles, and keep the lead going.

ROCKS AT ENTRANCE TO PORT PHILLIP,—*Australia, South Coast*.

With reference to notices to mariners, Nos. 13 and 16, dated 17th of February, 1863, and the 12th of December, 1864, relative to the discovery of rocks, and the uneven depth, at the entrance of Port Phillip, an iron vessel, drawing over 21 feet, recently entering the port during a fresh breeze, struck on a rock and passed over it. Several additional rocks, some of which with as little as 24 feet water on them, have been found in the well-known race locally termed the Rip. As unknown rocky pinnacles may yet be found, mariners are hereby warned accordingly.

ROCK IN PORT HERRADURA,—*South America, West Coast.*

Mr. Thomas F. Price, commanding the English barque *Pembroke Castle*, has reported the discovery of a dangerous rock in Port Herradura, (Coquimbo), on the West coast of South America, with only $3\frac{1}{2}$ feet water over it, and 5 fathoms close around it, at low water springs. It lies near the northern shore, with a conspicuous round hill in the N.E. corner of the port bearing N.E.b.E., and the inner eastern point of entrance W. $\frac{1}{2}$ N., distant nearly a cable's length.

The *Pembroke Castle*, when entering the port, only just cleared this rock in picking up a berth, and the ship *Knowsly* ran on to it and stove her bows in. The directions given to avoid it, are not to bring Herradura Point to the southward of W.b.S., nor the South end of the conspicuous round hill to the eastward of N.E.b.E.,—but as these bearings would place both the point and hill to the southward of their positions on the chart, the mariner is cautioned, that till this danger is further examined, not to come within a cable and a quarter's length of the inner eastern point of entrance of the port when rounding it.

The bearings are magnetic. Variation 15° E. in 1866.

NEW ZEALAND,—*North Island.*

A rock off Kawau Island, Hauraki Gulf, having 9 feet water on it at low springs, with 5 to 10 fathoms close to, has recently been discovered—by the British ship *Nelson* striking on it—in the passage between the Flat Rock and Kawau Island.

It lies four cables from the shore of Kawau, with the S.E. point of that island bearing S.b.W. $\frac{1}{2}$ W., Flat Rock E. $\frac{1}{4}$ S., Tiritiri Lighthouse S.b.E. $\frac{1}{4}$ E., and Takatau Point N.W.b.N.

Middle Island, Chalky Inlet.

A pinnacle Rock off the South point of Great Island, with 5 feet on it at low water, and 5 to 9 fathoms close around it, has also been found a cable's length southward of the rock marked on the chart off the South point of Great Island.

All bearings are magnetic. Variation at Kawau Island $14^{\circ} 25'$ E. in 1866.

RELIGHTING OF THE CAPE FLORIDA LIGHTHOUSE,—*United States of America, Coast of Florida.*

Notice has been given by the United States government, that on and after the evening of April 15th, 1866, there will be a light exhibited from Cape Florida Lighthouse, on the South point of Key Biscayne, S.E. point of Florida.

The tower is of brick, 95 feet high from base to focal plane, conical shape, whitewashed, and lantern painted white. The light is a fixed white light, at an elevation of 100 feet above the sea level, and visible

in clear weather eighteen miles. The illuminating apparatus is a lens of the second order. Lat. $25^{\circ} 39' 56''$ N., long. $80^{\circ} 9' 24''$ West of Greenwich.

WRECK OF THE STEAMER "EUROPEAN,"—*Position.*

Colon Bay, May 1st, 1866.

The following bearings for the position of the wreck of the iron steamship *European*, were taken by the harbour-master, (Captain Futhill,) and surveyor (Thomas Harrison, Esq.)

Bears from lighthouse.	S. 80° W. magnetic
Distance	1 mile 2,980 feet statute
Bears from Point Toro	S. $66\frac{1}{4}^{\circ}$ E. magnetic
Distance	1 mile 2,220 feet statute.

Vessels entering the harbour, by bringing Simon Point to bear S. $14\frac{1}{2}^{\circ}$ W., will be in line of wreck.

A small portion of her bow and all the davits are visible.

The wreck lies nearly North and South, head to the South. The stern in 6 fathoms and her bow in $5\frac{3}{4}$ fathoms of water. A large red buoy is anchored (with a mushroom 3 tons weight) directly over the stern.

W. W. KIDDLE.

ROCKS IN INDIAN REACH,—*South America, West Coast of Patagonia.*

Lieutenant B. F. Day, of the United States steam-vessel *Tuscarora*, has reported the discovery of a group of dangerous rocks, a little westward of mid-channel, and about two miles southward of Eden harbour.

From them the South point of entrance to Eden harbour is N.W. $\frac{1}{2}$ W.; South point of the island, N.W. $\frac{1}{4}$ N.; West point of land at Level Bay, N.b.W. $\frac{3}{4}$ W.; extremity of the rocks at entrance of a small bay on the East side, southward of Eden harbour, N.E. northerly; the most northern of the group of rocks in Indian Reach, seven miles southward of Eden harbour, S.S.E. $\frac{1}{4}$ E. nearly; and the point of land westward of the latter group of rocks S.b.E. $\frac{3}{4}$ E.

At high water, the largest is just awash; the others entirely covered. There is a scanty growth of kelp on them, but not sufficient to be well seen, except at low water. There are no soundings with 25 fathoms at a short distance around them, but 7 and 8 fathoms close to. They are in the route of vessels bound into Eden harbour, and to avoid them a vessel should borrow well on the East shore of the reach.

All bearings are magnetic. Variation $21^{\circ} 40'$ East in 1866.

THE IRON-CASED TURRET SHIP "BELLONA."

Messrs. Laird Brothers have just completed another iron-cased turret ship for the sea-going and coast defences, named the *Bellona*. She is 1,340 tons, and has engines of 300-horse power by Ravenhill, Hodgson, and Co. She is fully protected by armour plate $4\frac{1}{2}$ inches thick, tapering slightly at the ends, is fitted with double screws, and rigged as a barque. The turrets are on the principle of Capt. Cowper Coles, and are the same as those on board her Majesty's ships *Scorpion* and *Wivern*, the *Huascar*, and *Minerva*, constructed by the same builders. Each turret is covered with $4\frac{1}{2}$ -inch turret plates except opposite the ports, where it is 7 inches thick. She will carry four 150-pounder Whitworth rifle guns, two in each turret. The *Bellona* went out for a trial trip on the 22nd of February, being fully completed for sea (except guns, ammunition, and sea stores), and had on board 200 tons of coals, draught of water being about 11 feet mean, speed being 11.33 knots, under the unfavourable circumstances of a stormy day and cross sea. In smooth water no doubt a speed of 12 knots would have been obtained.

The turning and manœuvring powers were tested, with the following results:—1. In making a circle when both engines were working at full speed ahead; from the action of the rudder alone, the rudder was put over to an angle of 38 degrees by four men in 30 seconds; half circle made in 2 minutes; full circle in 4 minutes; the diameter circle not being more than from 600 to 700 feet. 2. Rudder being put over and one engine stopped, the other continuing at full speed ahead, half a circle being made in 1 minutes 55 seconds; full circle in 4 minutes and 15 seconds; the diameter of the circle not being more than 400 feet. 3. Rudder being put over, one engine stopped, and reversed at full speed, the other continuing at full speed ahead, half circle made in 2 minutes 5 seconds; full circle in 4 minutes 10 seconds; the diameter of the circle being not more than 200 feet. The vessel appeared to lose her headway immediately, and to swing round on her heel. 4. The rudder being lashed amidships, the vessel being driven ahead at full speed by both engines, one engine stopped and reversed, the other continuing at full speed ahead, half circle made in 3 minutes; full circle in 7 minutes; the diameter of the circle same as in No. 3 trial.

The results of these trials were considered satisfactory. After taking on board about 200 tons of additional coal and stores, the *Bellona* left Liverpool for her destination, and made the run from Formby lightship to Holyhead, a distance of about 60 nautical miles, in five hours and a half; the captain reporting that, in a strong beam-wind and heavy sea, the vessel had shown herself all that could be desired. After landing her pilot at Holyhead, the *Bellona* proceeded on her voyage.

Some time ago we noticed the trial of the *Minerva*, a double screw turret ship of 1000 tons and 140-horse power, built and engined by Messrs. Laird, which obtained a speed, at the measured mile, of 10

knots. We are informed that this vessel made the passage from Liverpool to Rio de Janeiro in thirty days, including all stoppages, which gives a speed of nearly 9 knots per hour; and, although only drawing 8 feet of water, proved herself during the voyage an excellent sea-boat under the circumstances. The performance of these vessels at their trials and at sea proves the advantages to be derived from the application of the double screw system to turret ships of light draught of water. Messrs. Laird Brothers have other double screw vessels in hand at the works at Birkenhead, one being an armour-clad turret vessel of more than 2000 tons, especially designed by them for sea-going, with engines of 400-horse power, to carry four 12½-ton guns, which, from her speed and heavy armament, will prove a most formidable ship of war.—*Liverpool Albion.*

THE AMERICAN IRON-CLAD "MONADNOCK."

The following is an extract from a private letter:—

"A great many vessels enter the harbour at Rio, not only merchantmen, but men-of-war, and lately we have had the American *Vanderbilt*, *Tuscarora*, and *Monadnock*. The latter is a monitor or iron-clad, and as she is the most singular vessel of the kind I have seen, I determined to go and have a good look at her. I went on the 10th of January, and on my arrival I was told they were under sailing orders, and no one could be admitted. I, however, sent my card to the commanding officer, and he was kind enough to allow me not only to go on board, but called an officer to explain matters to me. The hull of the vessel is only 18 inches out of the water. Just above the deck there are some bars and chains to keep it a little private; for were it not for them any one could walk off a common shore boat into her.

"When cleared for action, the bars and chains, the white tops of turrets, the walk with the awning that exists between the turrets, the masts, &c., the boats, and the two ventilators before the funnel are all taken away, and the three hatches are put down. The deck is covered with 3-inch iron plates over 8 inches of wood; the sides are covered with 5-inch iron plates over 36 inches of wood. There are two guns in each turret, weighing 43,000 lbs. each. A full charge of powder is 60 lbs., the second charge is 50 lbs., the third 35 lbs. The guns are 4 feet in diameter, 15 inches bore, and 20 inches thick at the breech. A boy goes in to clean them, but the day I went the boy happened to be out of the way, and so they told me a man went in; and I can only say that inside the guns there looked quite room enough for a man, and to spare.

"The turrets are 10½ inches thick, and the total weight of the turret, two guns, and the pilot house is 250 tons. To get air they have four engines to pump air into the vessel, and two to pump it out, and under each of the officers' private cabins, as well as in other places, there is a ventilator in the floor, similar to what you see in a stove, and certainly there appeared to be plenty of air when I was on board. The

way light is admitted below through holes about as large as to admit a small cannon ball; but in action these have thick iron covers, and are screwed fast below, so they must then burn candles or lamps. The number of men is 160, and 15 officers.

"The cost of the ship was 1,300,000 dollars, or in English money, at 4s. 4d. each, would be about £281,666. I forgot to mention the shot weighed about 400 lbs., and when fired they can be seen clearly along their whole course, which is very steady, not fast. Supposing they were boarded, they have three ways of clearing the deck:—1st, by firing one of the guns without shot, for the force of the powder is so great that anything on deck would be blown off by it, even if not directed towards the object; 2nd, hand grenades, and they have an instrument for pushing them through the holes I spoke of as those by which they obtain light, and they can place these wherever they like; 3rd, rifles, which of course can be used from inside the turret

"This vessel where it had been hit was indented much in the same way as a cricket ball would indent a deal board; but although apparently so secure, I should not like either to pass any of my life on board or even to go into action with her. At Charlestown one went over a torpedo, and it went down in 15 seconds, and all hands lost but two. A wave came against the iron door of the hatchway and closed it, squeezing three men to death in falling. They lost another, I believe, from a similar cause before Fort Monroe. After one of them went down they sent down a diving-bell to get the bodies, &c., and they found the torpedo had burst just under the officers' cabin while they were at supper, and I was told they must all have perished instantaneously."

NEW BUILD AND RIG FOR FISHING VESSELS.

The report on the sea fisheries of the kingdom has just been presented to the public by the commissioners, and it is gratifying to find that, in the face of the inroads the cattle disease is making upon our flocks and herds, there is no fear of diminution in our fish supply. But with this point we have not now so much to do as with the vessels by which the supply is maintained. In previous numbers we have described and illustrated the plan of a craft with a triangular keel, which was brought from China in the *George the Fourth*, East Indiaman, in the year 1839, the designer being Mr. Henry Dempster, formerly pilot, Bombay Harbour, H.E.I.C.S. The plan at that time was not taken up, in consequence, we suppose, of the unique-looking build and rig being so widely different from any other built or rigged sailing vessel. Now, however, we observe that a model with plans and drawings of the very same idea is being exhibited at the South Kensington Museum; and it is suggested that the plan might be usefully adopted for strong, safe, weatherly vessels for sea fisheries. The plan now exhibited differs but slightly from the diagrams we showed; the body of the vessel is built something like a billyboy, fitted with the triangular keel. To the sketch plan exhibited at the Museum is appended the following

description:—Dimensions of vessel: Length of deck, 81 feet; breadth of beam, 27 feet; depth of hold, 20 feet; depth of triangular keel from the floor of midship section to its apex, 7 feet. When bumping on rocks or sandbanks, an iron vessel built on this plan, with triangular keel, cannot easily break her back, and sailing on a bowline, the formation of keel keeps the vessel angling up towards the wind.

The fore and aft triangular sails are set on yards secured at the middle in swivels at the bow and stern of the vessel. These yards go right round clear of masts, and can be trimmed to any degree on a circle. For comfort in bad weather, and exactness to a degree, these yards can be trimmed from below by bevel gear. To reduce the triangular sails, as the halyards are lowered, the spar to which the foot of the sail is laced is turned by a lever handle. On the fore and aft mastheads, swivels are fitted to which the lower lifts are secured. The halyards go down through the swivels, so that when the yards are turned round and round, the halyards keep clear of the lifts. The topmast and topgallantmast are to be one spar; when the mast is struck the heel of it steps on deck; and when the shrouds are hauled taut, it is a support to the mainmast. On tacking the vessel the lower yards may either be angled from side to side or they may be swung round. Two good hands working the bevel gear can steer the vessel by the sails.

This proposed new build and rig for fishing vessels has been suggested since the loss of a number of fishing smacks in the North Sea. In stormy weather the smack rig has disadvantages. The sudden gybing of a main boom is at all times dangerous; and the mainmast being stepped before the centre of gravity, when laying-to in a heavy gale of wind, the vessel frequently lays open and exposed to the sea striking against her broadside. It is stated that a vessel can be kept longer under command with the new rig than with any other description of rig. There is no such term as gybing main booms with it; nor do even the storm or manœuvring sails lay aback against the masts, as is the case with lugger-rigs, a position that makes these sails difficult to be got down when it blows hard. The new rig appears to be worth consideration by those interested.

THE GUNBOAT "OPOSSUM" AMONGST PIRATES.

The recent cruise of the *Opossum* has been attended with very brilliant results. Lieutenant St. John, her commander, has in one week captured sixteen junks, forty prisoners, fifty three guns; has burnt a pirate village and liberated twenty-seven captives,—a week's work to be proud of indeed. Our readers will remember that a few weeks ago we reported the arrival of the *Opossum* at Macao, with the information that she had destroyed fifteen junks. Since then we have learned some particulars of her adventures.

On Saturday, the 10th of February, Lieutenant St. John applied for leave and received permission from the admiral to go out for a

cruise. He did not at that time know of any projected operations on the part of the pirates, and intended simply to look round and see what was going on. His fires were no sooner up, however, than some of the native merchants sent off to inform him that a number of pirate junks were lying off a place called Pak-shui, on the West coast, just beyond Macao. In that direction, therefore, he steered, and yesterday week flushed the birds he searched for. At the head of a creek, stood the village, guarded by a battery of three guns—one of them a 55 cwt. gun throwing a 24 lb. shot—and anchored off it lay the piratical junks, fifteen in number. They were all armed, some of them heavily. In all they carried forty-three guns, most of them 18-pounders. They were manned by 200 men, and it must be acknowledged were not a bad match for one boat with only three guns on board, manned by about seventeen or eighteen Europeans, even though these were British seamen. Lieutenant St. John came in so that as he ran down on the junks they were end on to him, and their guns being all in the broadside, were consequently useless. As soon as he came within range he opened a flank fire on the battery, and in a very short time its defenders cleared out. This was the signal for the men in the junks to do the same. The whole 200 scrambled on shore, and off into the interior, leaving the vessels a prey to the gunboat. Lieutenant St. John landed with a small party of men from the gunboat, and while he was on shore, as we understand, the explosion took place on board one of the junks, by which the warrant officer of the *Opossum* was wounded. He was engaged setting fire to the vessel, when a jar of powder standing on the deck took fire.

There was no explosion in the ordinary sense of the word, that is, no materials were thrown about, and the gunner was burned by flames of the powder, and by a succession of smaller explosions which followed. A boy who was with him jumped overboard and escaped with but few injuries, but the gunner could not swim, and had to run on in the junk. A marine was wounded in another explosion while setting fire to a junk which had been hauled up on shore. After the work had been performed, when the pirates were all out of the way, and the *Opossum* was busily engaged destroying their crafts, a fleet of forty Mandarin junks came round the point. It seemed that the Imperial men-of-war had been twice beaten off by the pirates of Pak-shui, and were coming down this time in force. The one English gunboat, however, had accomplished the task out of hand, and there was nothing left for the Chinese but to profit by the victory.

They landed 1,600 men and burnt the village, and Lieutenant St. John handed over to them the greater number of the captured junks and guns, after having destroyed the rest. He then went to Macao, and sent back his wounded men to Hong Kong. On Wednesday, off a place called I-mum, he fell in with a large heavily armed junk, about 30 feet longer than the *Opossum*, carrying eight guns, big enough to have hoisted her Majesty's small ship *Opossum* on board altogether if she had had the proper machinery. The junk was at once recognised as the vessel of which the gunboat, on information received, was in

search. When she was stopped her owner was prepared with all the documents necessary to prove him a most respectable trader, only carrying guns for his own protection; but it happened that Lieutenant St. John had on board the Chinaman who really owned the vessel. She had, it seems, been entrusted to the man now found in possession of her, who had never afterwards accounted for her to her owner, but had turned pirate instead. When confronted with the Chinese merchant on board the *Opossum*, he saw that his game was "played out," and resigned himself to his fate with Asiatic fortitude. He made no further attempt to defend himself either by arguments or physical force, and together with forty companions was conducted by the *Opossum* to Quang-hai, and given over to the mandarins. By them he was recognised as a man of great influence on the West coast. He and his crew will be sent on to Canton, and there is no reason to doubt the fait that awaits them. The captives we spoke of above were released at Pak-shui before the village was burnt.

Hong Kong Daily News.

H.M.S. "CURACOA" AT THE SOUTH SEA ISLANDS.

Her Majesty's steam corvette *Curaçoa*, Commodore Sir William Wiseman, arrived at Sydney on the 13th of October from a cruise among the South Sea Islands. The following is an account of her proceedings:—

"We sailed from Sydney on the 4th of June last, and made a good passage to Norfolk Island. Arrived there on the 9th. The quondam Pitcairners received us with great hospitality. The commodore returned their civility, by permitting the band to be landed for their amusement, and by getting up a very fair ball two nights before our departure. The weather being very boisterous, we were detained here by the ship having suddenly to leave the roadstead and put to sea, many of the officers being on shore at the time. The ship having returned again on the 13th, we proceeded to sea, and met with foul winds for some days. Sighting Sunday Island, we at length arrived at Savage Island, from whence after a short stay we sailed for Pango Pango, a beautiful harbour in the Island of Tutuila, one of the Samoan Group. Here the natives performed their war-dance on board, to the great amusement of all.

"Our next visit was to Apia, the capital of the Samoan Group, in the Island of Opolu, where we received great kindness from Mr. Williams, her Majesty's consul, and the European residents. After five days' stay we proceeded to Vavau, in the Friendly Islands, and remained there about two days. On the 17th of July we arrived at Tonga-Tabu, the capital of the Friendly Group, where the great King George (for he is a giant in stature) paid his respects to the commodore, who received him with his yards manned and other honours due to royalty. On leaving the ship the King was saluted with twenty-one guns. Leaving the Friendly Islands we made for the Fiji Group, the

first island we touched at being Ovalau; from thence we went to Mban, a small island in the Fiji Group. Upon our arrival King Thakambau, with the principal chiefs of the island, visited the ship. On one occasion he was accompanied by the queen, who is a wonderful woman in bulk and stature, a giantess in fact, calculated to take the first prize in any competitive exhibition of the relative proportions of the fair sex in any part of the world whatever. Upon the king leaving the ship he was saluted with twenty-one guns.

"On the following day, when the commodore returned his visit, Thakambau saluted him from his battery consisting of four small guns, with which his liege subjects were occupied fully half a day. Kandoa, also in the Fiji Group, was next visited; after which we made for Aneitum, an island in the New Hebrides Group, where we found H.M.S. *Esk*, with our English mail. We remained at Aneitum four days, and sailed from thence to the Island of Tanna, in the same group, accompanied by several missionaries in their schooner, the *Day Spring*. The day previous to our departure, the commodore, in consequence of the cruel treatment which British subjects had suffered from its cannibal inhabitants, conceived it to be his duty to shell the villages in the vicinity of the ship, and to land a force of small-arms men and marines to destroy their villages, canoes, and plantations,—a just retribution for the barbarities they had committed, and a warning to them for the future. We had one seaman wounded, who was shot through the abdomen: he was taken on board, and died shortly after. The exact number killed and wounded among the Tannese we were not able to ascertain, but we believe it must exceed twenty.

"The day after our departure a party of natives coming accidentally upon an unexploded shell in the bush, were seized with a curiosity to see the contents of the brass percussion fuse: they squatted themselves round the shell, and began to beat the fuse with a stone, when it suddenly exploded, killing six of them and wounding others. The next morning we sailed for Erromanga, and anchored in Dillon's Bay, when the commodore landed and visited the sandal-wood station of Mr. Henry, who he found had only just returned from Sydney. He also saw Mrs. Henry, who informed him that during her husband's absence the natives had besieged her castle, and had carried on a prolonged attack from the opposite side of the river, some thirty or forty yards in width, from whence they kept up a harassing fire upon the station buildings. These islanders were aware of her husband's absence, and she bravely kept her ground, with the few retainers she had at command, against the barbarian, anthropophagite horde, until they raised the siege, and fled to their mountain homes. Vita Harbour, in Sandwich Island, was the next place we visited. From thence we proceeded to Havannah Harbour, another port in the same island. After a short stay we sailed for Vanua Leva, an island in Banks' Group. Here we fell in with Bishop Patteson, of the Melanesian mission, whom the commodore had engaged to meet here in his schooner, the *Southern Cross*, and who afterwards kept in company with us until our departure for the Solomon Group.

"We then proceeded to the Contrarieties Island, in the Solomon Group, passing through the Santa Cruz Group on our way. From thence we went to Ugi or Gulf Island; and after visiting Recherche and Wano Bays, in the islands of St. Christoval, Marau Sound, in Guadalcanar; Mbolu Bay, in Florida Island; and St. George's Bay, Ysabel Island, all of the Solomon Group, we finally bade adieu to Bishop Patteson, who left for Curtis Island, and took our departure for Erromanga, where we arrived on the 25th of September. The purport of our second visit being to ascertain whether the natives were disposed to be more amicably inclined towards the British residents in the island. In consequence of the ill treatment to which British subjects had of late been exposed at Dillon Bay, the commodore was induced to inflict some little punishment on the natives of Sivu, a village on the coast a short distance from Dillon Bay, by throwing a few shot and shell into the place; and instructing Mr. Gordon at the same time to inform the natives that a man-of-war would visit the island next year, and inflict still further punishment upon them if they did not in the mean time amend their ways.

We took our departure for New Caledonia on the 26th, arriving on the 30th. On our arrival we found the governor, M. Guillain, had just returned from an expedition to the West coast of the island, to inflict summary punishment on the natives for the murder of several French subjects, whom they not only killed, but devoured afterwards. We remained a week at the Port de France, where we received great hospitality from the governor and residents, and finally took leave of our friendly allies, and then made sail for Sydney."

Hants Telegraph.

CHARTS AND BOOKS PUBLISHED BY THE HYDROGRAPHIC OFFICE, ADMIRALTY, in May, 1866.—*Sold by the Agent, J. D. Potter, 31, Poultry, and 11, King Street, Tower Hill, London.*

535.—Brazil, North Coast, San Marcos or Maranham Bay, Lieutenant Tardy de Montraval, F.I.N., (1s.)

1,241.—Ice Chart of the Southern Ocean, 1866, (2s. 6d.)

930.—Philippine Islands, Moluccas Islands, anchorages, plans of, 1847, (1s. 6d.)

2,454.—Philippine Islands, Luzon Island, northern portion, Lieutenant C. Montero, Spanish Navy, 1859, (2s. 6d.)

1,019.—Cochin China, Yu-lin-kan and Gaalong Bays, also view, French survey, 1817, (1s. 6d.)

1,114.—South Pacific Ocean, Tonga or Friendly Islands, from various documents, corrected to 1866, (2s. 6d.)

2,421.—South Pacific Ocean, Auckland and Campbell Islands, with Port Ross and Perseverance Harbour, various authorities, 1810-40, (1s. 6d.)

EDWARD DUNSTERVILLE, *Commander, R.N.*

Admiralty, Hydrographic Office, 21st May, 1866.

THE
NAUTICAL MAGAZINE

AND

Naval Chronicle.

JULY, 1866.

JAMAICA:—*Its Fortunes and Misfortunes.*

We have not as yet preserved for our readers a continuous history of the Jamaica outbreak, so absurdly called by her governor, Mr. Eyre, a rebellion. It is happily not likely to occur again, since equitable government has been introduced into that unfortunate island. Before the appearance of our next number, we hope to see the official result of the inquiry into that outbreak, instituted by the home authorities; as well as the rectification of those evils which seem to have prevailed there. Meanwhile so complete and unprejudiced a picture of it has been drawn by our American friends, that we transfer it at once from their interesting periodical the *Atlantic Monthly* to our own pages, glad to obtain it from an unpoluted source, and one that knows well the difference between freedom and oppression.

If Cuba be the Queen of the Antilles, then fairest of the sisterhood which adorn her regal state is Jamaica. A land of streams and mountains,—from the one it derives almost inexhaustible fertility of valleys and plains; from the other enchanting prospects, which challenge comparison with the scenery even of Tyrol and Switzerland. Tropical along its shores, temperate up its steep hills, the sun of Africa on its plains, the frost of New England in its mountains, there is scarcely a luxury of the South or a comfort of the North which may not be cultivated to advantage somewhere within its borders. Here is the natural home of the sugar-cane; and it is scarcely a figure of speech to say that the sugar of the world might come from the teaming bosom of this little island.

Here, too, are the slopes of hills and broad savannahs, where "the grass may almost be *seen* growing," and where may be bred cattle fit to compete with the far famed herds of England. The forests are full of mahogany and logwood. The surrounding waters swarm with fish of every variety and the finest flavour. Nominally, at least, the people are free and self governed; and if under propitious skies, the burthens either of the private home or of the state are heavy and crushing, it is because of *mismanagement*, and not of necessity.

Yet Jamaica is poor and discontented, and from year to year is growing more miserable and more full of complaints. While on the little island of Barbados, which is flat and comparatively destitute of natural beauty, the inhabitant is proud, to the verge of the ludicrous, of his home, the Jamaican, dwelling amid scenes of perpetual loveliness, despises his native soil. And not without reason. For Jamaica presents that saddest and least flattering sight, a land sinking into hopeless ruin. Her plantations are left uncultivated. Her cities look timeworn and crumbling. Her fields, which once blossomed like the rose, are relapsing into the wilderness. She does not feed her people. She does not clothe them. She does not furnish them shelter. With three hundred and fifty thousand Negroes she has not sufficient labour. With twenty thousand whites she has not employers enough who are *capable of managing wisely and paying honestly* what labour she has. With a soil which nature has made one broad pasture, she does not raise the half of her beef and pork. With plains which ought to be waving with luxuriant harvests of wheat and corn, her children are fed from our overflowing granaries. With woods filled with trees fit for building, she sends all the way to the Provinces for shingles, joists, and boards. On her two hundred swift sparkling rivers, there was not, in 1850, a single saw-mill. In an age of invention and labour-saving machines, the plough is to her a modern innovation: and her labourers still scratch the soil which they seek to till with tools of the middle ages. Even the production of sugar, to which she has sacrificed even other industrial interest, has sunk from the boasted hundred and fifty thousand hogsheads of the last century to a meagre yearly crop of thirty thousand. Nine tenths of her proprietors are absentees. More than that proportion of her great estates are ruinously mortgaged. A tourist gives, as the final evidence of exhaustion, that Jamaica has no amusements, no circus, no theatre, no opera, none of the pleasant trifles which surplus wealth creates.

Nor are the moral aspects any more encouraging. Slavery, dying, cursed the soil with its fatal bequest, contempt for labour; and the years which have elapsed since emancipation, have done little or nothing to give to the toiler conscious dignity and worth. The bondsman, scarcely yet freed from all his chains, naturally enough thinks that "if massa will not work," it is the highest gentility in him not to work either, and sighs for a few acres whereon he may live in sluggish content. And his quondam master, left to his own resources, will not any more than before put his shoulder to the work; and, though sunk himself in sloth, ceases not to complain of another's indo-

lence. The spirit of caste is still relentless. The white man despises the black man, and, if he can, cheats him, and tramples upon him. The black man, in return, suspects and fears his old oppressor, and, sometimes goaded to desperation, turns upon him. A perpetual discontent has always brooded over Jamaica, and it is recorded, that no less than thirty bloody rebellions have left their crimson stains on her ignoble annals.

It is in vain to inquire for the causes of this physical and moral decay. For every class has its special complaint, every traveller his favourite theory, and every political economist his sufficient explanation. But let the cause be what it may, the fact stands out black and repulsive. Jamaica, which came from the hand of the Creator a fair and well watered garden, has presented for more than half a century that melancholy spectacle, too common in Equatorial America, of a land rich in every natural advantage, and yet, through the misfortune or folly of its people, plunged in poverty and misery.

The world at large had become tired of the griefs of Jamaica, and reconciled itself to her wretchedness as a foregone conclusion, when the events of last October lent a fresh and terrible interest to her history. "An insurrection, including in its purpose the murder of every white man on the island, has been quenched in the blood of its leaders," say the governor of Jamaica and his defenders. "An insignificant riot has been followed by a wholesale and indiscriminate massacre, sparing not even women and children," reply their opponents.

Admitting for a moment the whole planter theory of a general insurrection, the question inevitably arises, What are the causes which would prompt such a rebellion, and which, while they do not justify violence, furnish reasons why every humane mind should desire to treat with leniency the errors, and even the crimes of an ignorant and oppressed race. The ordinary burden of the Jamaica negro is far from a light one. The yearly expense of his government is not less than a million dollars, or about three dollars for every man, woman, and child on the island. The executive and judicial departments are on a scale of expense which would befit a continent. The governor receives a salary of forty thousand dollars; the chief justice, fifteen thousand dollars; the associate justices, ten thousand dollars. The ecclesiastical establishment, which ministers little or nothing to the religious wants of the coloured race, absorbs another large portion of the public revenue. And all this magnificence of expenditure in a population of twenty thousand bankrupt whites and three hundred and fifty thousand naked blacks. If, now, the negro believes that this burden was distributed evenly, he might bear it with patience. But he does not believe so. He is sure, on the contrary, that the white man, who controls legislation, so assesses the revenue that it shall relieve the rich and burden the poor. He tells you that the luxuries of the planter are admitted at a nominal duty, while the coarse fabrics with which he must clothe himself and family pay forty per cent.; that while the planter's huge hogshead of seventeen hundred pounds weight pays only an excise of three shillings, the hard raised barrel

of his home produce of two hundred pounds must pay two shillings; that every miserable mule cart of the petty landowner is subjected to eighteen shillings licence, while the great ox carts of the thousand acre plantation go untaxed;—a law under which the number of little carts in one district sunk from five hundred to less than two hundred, and with it sunk, who shall tell how much growing enterprise. These complaints may be unjust, but the negro believes in them, and they chafe and exasperate him.

Another important question is, What is the ability of the negro to bear these burdens? A defender of the planter gravely asserts, "that the negro demands a price for his labour which would be exorbitant in any part of the world." What is that exorbitant price? An able bodied agricultural labourer in Jamaica receives from eighteen to thirty cents a day; and if he is both fortunate and industrious, may net, for a year's work, the fabulous sum of from fifty to eighty dollars. And this in a country which is one of the dearest in the world; where the necessaries of life are always at war prices; where flour is now twenty dollars a barrel, and eggs are fifty cents a dozen, and butter is forty cents a pound, and ham twenty-five, and beef and mutton still higher.

Did the labourer actually receive his pittance, his lot might be more tolerable. But it is the almost universal complaint, that, either from inability or disinclination, the planter does not keep his agreements. Sometimes the overseer, when the work has been done, and well done, arbitrarily retains a quarter or even a half of the stipulated wages. The negro says, he has no chance for redress; that even a written agreement is worth no more than a blank paper, for the magistrates are either all planters, or their dependents, and have no ears to hear the cry of the lowly. Add, now, to all this the fact, that the last few seasons have been unfavourable to agriculture, that planters and peasants alike are even more than usually poor; that in whole districts the blacks are destitute, their children up to the age of ten or twelve years from absolute necessity going about stark naked, and their men and women wearing only rags and streamers, which do not preserve even the show of decency; and is there not sufficient reason, not indeed to justify murder and arson, but why a whole race of suffering and excitable people should not be stamped as fiends in human shape for the outrages of a few of their number?

Turn, now, to the actual scene of conflict. In a little triangular tract of country on the East shore of Jamaica, hemmed in between the sea and the Blue Mountains, twenty-five miles long and two thirds as wide, occurred in October last what Governor Eyre has seen fit to dignify with the name of an insurrection. The first act of violence was committed at Morant Bay, a town where, it is said, that no missionary to the blacks has been permitted to live for thirty-five years, in the parish of St. Thomas in the East, that very St. Thomas, possibly whose court-house was called forty years ago the "hell of Jamaica," and where is preserved as a pleasant relic of the past a record book wherein the curious traveller reads the prices paid in the palmy

days of slavery for cutting off the ears and legs and slitting the noses of runaway negroes. Had these negroes of Morant Bay any special cause of exasperation? They had. Their complaint was threefold. First, that the only magistrate who protected their interests had been arbitrarily removed. Second, that a plantation claimed by them to be deserted, was as arbitrarily adjudged to be the property of a white man. Third, that the plucking of fruit by the wayside, which had been a custom from time immemorial, and which resembled the plucking of ears of corn under the Jewish law, was by new regulations made a crime. Thus matters stood on the day of the outbreak: a general condition of poverty and discontent throughout the island; a special condition of exasperation in the parish of St. Thomas in the East, and particularly at Morant Bay.

On the 7th of last October, a negro was arrested for picking two coconuts, value threepence. This arrest had every exasperating condition. The fruit was taken from a plantation whose title was disputed; and upon which the negroes had squatted. The law which made the plucking of fruit a crime was itself particularly obnoxious. The magistrate before whom the offence was to be tried, rightly or wrongly, was accused by the blacks of gross partiality and injustice. The accused man was followed to the court by his friends, armed, it is said, with clubs, though this latter statement seems doubtful. When a sentence of four shillings fine, or, in default of payment, thirty days' imprisonment was imposed, the award was received in silence. But when the costs were adjudged to be twelve shillings and sixpence, there were murmurs. Some tumultuously advised the man not to pay. Some believing the case involved the title to the land, told him to appeal to a higher court. The magistrate ordered the arrest of all noisy persons. But these fled to the streets, and shielded by the citizens, escaped. The next day but one, six constables, armed with a warrant, proceeded to Stony Gut, the scene of the original arrest, to take into custody twenty-eight persons accused of riot. But they were forcibly resisted, handcuffed with their own irons, and forced ignominiously back. Some of the arrests, however, were made quietly a little time after.

On the eleventh of October dawned an eventful day. The magistrates were assembled in the court house at Morant Bay for the purpose of examining the prisoners. The court house was guarded by twenty armed volunteers, apparently of local militia. Some four or five hundred excited blacks surrounded the court house, armed with bludgeons, grasping stones. What led to a collision can never be known. Very probably missiles were thrown at the guard. At any rate the officer in command ordered them to fire upon the crowd, and fifteen of the riotors fell dead or wounded. Then all restraint was at an end. The negroes threw themselves with incredible fury upon the guard, drove them into the court house, summoned them to surrender at discretion, then set fire to the building, and murdered, with many circumstances of atrocity, the unhappy inmates as they sought to flee. Sixteen were killed and eighteen wounded, while a few escaped un-

hurt, by the help of the negroes themselves. This was the beginning and the end of the famous insurrection, so far as it ever was armed insurrection. The rioters dispersed. The spirit of insubordination spread to the plantations. There was general confusion, some destruction of property, some robbery. The whites were filled with alarm. Many left all and fled. The most exaggerated reports obtained credence. But if we except a Mr. Hine, who had rendered himself especially unpopular, and who was murdered in his plantation, not one white man appears to have been killed in cold blood, and not one woman or child suffered from violence of any sort. Facts to the contrary may yet come to light. Official reports may reveal some secret chapter of bloodshed. But the chances of such revelation are small enough. Three months have elapsed since the first tidings of the outbreak reached the mother country. There has been a great excitement; investigation has been demanded; facts have been called for; the defenders of the planters have been defied to produce facts. Meanwhile the governor of Jamaica has written home repeated dispatches; the commander of the military forces which crushed the rebellion has revisited England; the planters' journals have come laden with vulgar abuse of the negro, and with all sorts of evil surmises as to his motives and purposes; letters have been received from Jamaica from persons in every position in life, and still no new facts,—not so much as one clear accusation of any further violence. The conclusion is irresistible, that this was a riot, and not an insurrection; and that it began and ended as far as armed force was concerned at Morant Bay, on that unhappy day the 11th of last October.

It cannot be denied that the occurrences of that day were marked by circumstances of painful ferocity. Men were literally hacked to pieces calling for mercy. One man's tongue was cut from his mouth even while he lived. Another, escaping, was thrown back into the burning building and roasted to death. The joints of the hand of the dead chief magistrate were dissevered by the blacks, who cried out exultingly, "This hand will write no more lying dispatches to the Queen." But the events of that day were marked also by instances of humanity. The clerk of the court was rescued by his negro servant, who thrust him beneath the floor, and, watching his opportunity, conveyed him to the shelter of the woods next morning. A child who happened to be with his father in the court house, was snatched up by a negro woman, who at the risk of her own life carried him to a place of safety. But admitting the worst charges, any one who remembers the New York riot of 1863, will be slow to assert that this black mob exhibited any barbarity which had not been more than emulated by white mobs. Shocking enough the details are; but human action always and with every race is ferocious when once the restraints of self-control and the law are thrown off.

With a people so excitable as the blacks of Jamaica, and among whom there existed so many causes of disaffection, the greatest promptness of action was a virtue. Had Governor Eyre marched with a military force into the district, had he crushed out every ves-

tige of armed resistance, had he brought before proper tribunals and punished with severity all persons who were convicted of any complicity in these outrages. What he did was to gather from all quarters an armed force, a motley crew, regulars and militia, sailors and landsmen, black and white, and permit them to hold for fourteen long days a saturnalia of blood, What he did was to summon the maroon tribes to the feast of death, that by their barbarous warfare they might add yet one more shade of gloom to the picture. The official accounts are enough to blanch the cheek with horror. For two days after the riot martial law was declared. In four, the outbreak was hemmed into narrow quarters. In a week, it ceased to exist in any shape. Yet the work of death went on. Bands of maddened soldiers pierced the country in every direction. Men were arrested on the slightest suspicion. Every petty officer constituted himself a judge, every private soldier became an executioner. If the black man fled he was shot as a rebel; if he surrendered, he was hung on that same pretext, after the most summary trial. If the number of prisoners became inconveniently large, they were shot, or else whipped and let go, apparently according to the whim of the officer in command. Women were seized, stripped half naked, and thrown among the vulgar soldiery to be scourged. The estimate is that five hundred and fifty were hung by order of drum-head court-martial, five hundred destroyed by the maroons, two thousand shot by the soldiery, and that three hundred women were catted, and how many men nobody presumes even to guess. One asks, At what expense of life to the victors was all this slaughter accomplished? And he reads, that not one soldier was killed, that not one soldier was wounded, that not one soldier received so much as a scratch, unless from the bushes through which he pursued his prey. It was not war it was a massacre. These poor people fled like panic-struck sheep, and the soldiery tracked them like wolves. The human heart could wish to take refuge in incredulity, but, alas! the worst testimony of all is found in the official reports of the actors themselves.

A few terrible anecdotes will give reality to the picture. George Marshall, a mulatto, was taken up with others as a smuggler, and ordered to receive fifty lashes. With each lash the unfortunate man gritted his teeth and turned his head, whether from pain or anger is uncertain. The provost-marshal construed this into a threatening look, and ordered him to be hung, which was done. There was no proof whatever that Marshall had any connection with the riot, A company of the Maroons discovered a body of blacks, men, women, and children, who had taken refuge up in the trees, and stood and deliberately shot them, one by one, until they had all fallen, and the ground beneath was thickly strewn with their dead bodies. On a plantation between Morant Bay and Point Antonio, the people were led by evil example into some acts of riot and pillage. But even in the midst of their licence, they sent word to the English gentleman who had charge of the plantation, that if he and his family remained quiet, they should be protected. So rapidly did the spirit of riot burn

itself out, that on the next Sunday, only four days after the first outbreak at Morant Bay, he rode down to the estate, conducted a religious service as usual, speaking boldly to the people of the folly and sin of their course, and counselling them to return quietly to their work. His words were so well received, that on Monday morning he started for the plantation, purposing to appoint for the workmen their tasks as the best possible way of keeping them out of mischief. As he drew near he heard firing, and the first sight that greeted him was a negro shot down. The village was in possession of a small company of soldiers, without even a subaltern to command them. Without pretence of a trial, they were shooting the people one by one, as they were pointed out to them by a petty constable. On their march, these very soldiers had been ordered to fire at every one who ran away, and they fired at every bush at random, never stopping to count the slain.

Nothing can exceed the horrible frankness of the reports of the officers. Here is Lieutenant Adcock's language:—"On returning to Golden Grove in the evening, sixty-seven prisoners were sent in by the Maroons. I disposed of as many as possible, but was too tired to continue after dark. On the morning of the 24th, I started to Morant Bay, having first flogged four and hung six rebels." Here is a gem from Captain Ford:—"The black troops are more successful than ours in catching horses; nearly all of them are mounted. They shot about one hundred and sixty people in their march from Port Antonio to Manchioneal, hanged seven at Manchioneal, and shot three on their way here. This is a picture of martial law, and the soldiers enjoy it." Now consider a moment this killing of one hundred and sixty people on the way from Port Antonio. The distance traversed in a direct line was about twelve miles. There are no large towns on the line of march; and if you suppose that the rural population had here the average density of the island, there could not have been, in a belt of country one mile wide and the twelve miles long, over five hundred people; and we are forced to the conclusion that these restorers of peace, cleared a strip a mile wide of every man and every well grown boy. "And the soldiers enjoy it!" and the officers glory in it! Nothing was permitted to stop or clog the death mills. At Morant Bay, "to save time," two courts martial were formed. No time was lost in proceeding to business. "Each five minutes condemned criminals were taken down under escort awaiting their doom." Only three brought before these terrible tribunals escaped death. The court, composed exclusively of military and naval officers, spared none. How many other such courts were at work does not appear; but it is evident not less than ten or a dozen. And subalterns, who ought not to have been entrusted with the charge of a score of men, assumed the dread power of life and death over poor wretches, snatched from their homes and given neither time nor opportunity for defence. Yet all this does not satisfy the remorseless planter. When in a parish of thirty thousand people, two or three thousand sleep in bloody graves, and at least as many more have been piteously scourged, he calls "the

clemency of the authorities extraordinary," and says, "that it comes too soon." No wonder that such a record as this stirred to its depth the popular heart of England, and it is the only relieving feature that the indignation thus aroused has overridden all opposition, silenced all paltry excuses, and forced the government to appoint a commission of inquiry, and pending that inquiry to suspend Governor Eyre from his office.

One case, that of the judicial murder of Mr. Gordon, has properly awakened great attention. Mr. Gordon was the very magistrate whose removal from office created so much discontent in St. Thomas in the East. He was a coloured man, with a very slight infusion of black blood. His father was an Englishman, and he himself was bred in England, and married an English lady. He was wealthy, and the owner of a great plantation. A bitter and fearless opponent of what he considered to be the oppression of the planters, they in turn concentrated on him all their anger and malice, while the negroes looked up to him as their hope and defence. What did take place was this. Mr. Gordon was at Kingston, forty miles away from the scene of action. As soon as he learned that a warrant was out for his arrest, he surrendered himself, and was hurried away from the place where civil law was supreme to the scene of martial law at Morant Bay. Without a friend to defend him, with no opportunity to procure rebutting evidence, he was brought before a court of three substitutes, and, after what was called "a very patient trial," of four or five hours, was sentenced to be hanged. Not one insult was spared. When he was marched up from the wharf, the sailors were permitted to heap upon him every opprobrious epithet. Before his execution "his black coat and vest were taken from him as a prize by one soldier, his spectacles by another; so (as an officer boasts) he was treated not differently from the common herd." The accusation was that he had plotted a wide-spread and diabolical rebellion. The only evidence which has been submitted proves him to have been guilty of intemperate language, and an abounding sympathy for the poor and oppressed.* In his last letter to his wife, written just before his execu-

* Since the above was written, dispatches and explanations have been received from Governor Eyre and published; also an unofficial account of Mr. Gordon, from the pen of a reporter who was present. It is to be regretted that these papers do not relieve the authorities from the charge of atrocious and illegal cruelty in the slightest degree. Neither does the evidence in any way justify the legal or illegal murder of Mr. Gordon. While in November there was an evident desire to boast of the number and severity of the punishments which had been inflicted upon the unfortunate blacks, there is as evident a desire in January to show that the number of those who perished had been greatly exaggerated. But it is difficult to see how the actors propose to refute the statements for which they themselves furnished the materials. One agreeable fact comes out in these papers, that the British home authorities never committed themselves to a support of the conduct of the Jamaica officials. On the contrary, it now appears that Mr. Cardwell, the British Colonial Secretary, from the beginning intimated very clearly his doubt of the propriety of the proceedings, especially in the case of Mr. Gordon.

tion, he uses language which has the stamp of truth upon it. "I do not deserve my sentence, for I never advised or took part in the insurrection. All I ever did was to recommend the people who complained to seek redress in a legitimate way. It is, however, the will of God that I should thus suffer in obeying his command to relieve the poor and needy, and so far as I was able to protect the distressed. And glory be to His name, and I thank Him that I suffer in such a cause." But it matters not of what Mr. Gordon was guilty; the method of the proceedings, the dragging him from civil protection, the deprivation of all proper opportunity for defence, the putting him to death, as it were, in a corner, were all subversive of personal rights and safety. The highest authority in England has declared the whole trial an illegality. And the circumstances of the hour, when every vestige every pretence of armed resistance had been swept away, left no excuse for overstepping the bounds of legal authority.

It is proper that full weight should be given to the alleged justification of these enormities. A diabolical plot existed, whose meshes included the whole island, and whose purpose was to put to death every white man and to outrage every white woman. This is what the governor asserts. This is what the assembly reiterates. This is the charge upon which every appeal of the Jamaican journals turns. The whole truth we probably never shall know. The men who could best reveal it are silent in the graves which lawless violence has dug for them, and will bear no testimony except at the bar of Eternal Justice. The report of the Committee of Inquiry will no doubt shed some light. Pending that inquiry, there are considerations which strike every one. If for two years a bloody insurrection had been plotted, and the outbreak at Morant Bay was the first stroke toward its accomplishment, is it credible that these truculent rebels should submit themselves as sheep to the slaughter,—that not one band should be found to strike a manly blow for life and liberty? If such an insurrection had its roots in every part of the island, is it credible that while the whole military and naval force and no small part of the white inhabitants were engaged in putting down the thirty thousand of their brethren in St. Thomas and Portland parishes, the three hundred thousand blacks all over the island should remain peaceable and law-abiding? And it is to be noticed that, since the reign of terror has subsided a little, those who know the negroes best, the missionaries who labour among them, express the most hearty contempt for these charges. But suppose that the negro had plotted insurrection, diabolical, satanic, would that be any excuse for wholesale slaughter, without forms of law, when all resistance was at an end? We know that the South plotted and consummated rebellion; that her people have slain three hundred thousand of our sons on the battle field; that more than thirty thousand have wasted and died of slow torture in her prisons; that whenever the secrets of that charnel house of Southern life are disclosed, they will tell of thousands of Unionists who were hung, who were shot, who were burned at the stake, who were scourged to death with whips, and all because they were faithful to their country.

And knowing all this, is there a man of the North, who, when military resistance has ceased, would march our armies southwards, hang every tenth man, shoot every fourth, scourge as many more, and suffer a wild soldiery to strip half naked and score with cruel whips thousands of the women? And does it alter the moral aspect of the case, that these things are transacted on a little island of the sea and not on a continent, or that the skin of the sufferer is black instead of white?

The use men seem to make of events reveals often the motives which they carried into the transaction of those events. Never was this more true of any body of people than of the planters of Jamaica. The *Kingston Journal*, an opposition but not a radical paper, boldly asserts, that the press has been gagged because it urged upon government the necessity of reform; that it has not dared to comment upon current facts, lest it should come under grave suspicion; that "now, when the greatest order prevails, and there is not the remotest probability of another outbreak, we *dare* not comment upon events, which, for the good of all classes, ought to be calmly and fully discussed." A significant commentary upon these statements is the fact that Mr. Levien, the editor of a Jamaica paper, was arrested, because in an editorial he boldly condemned the trial and execution of Mr. Gordon. And it is probable that he escaped paying dearly for his courage only because the chief justice of Jamaica declared the whole law under which he was arrested unconstitutional, and dismissed the case. A still more significant commentary upon these statements is that other fact, that in the midst of what they averred were the throes of the rebellion, the members of the Assembly proceeded to destroy the very foundations of civil and religious liberty and of the freedom of the press. They proposed to give the governor almost despotic authority, by surrendering the franchise of the Assembly and vesting its powers in a council of twenty-four, half elected by the people from the list of those only who had estates worth more than fifteen hundred dollars a year, or a salary of more than twenty-five hundred dollars. All social worship, all conference and prayer meetings, and even family prayers, if more than two strangers were present, were to be interdicted, unless, indeed, they were conducted by a minister of a favoured sect. The denominations who had chiefly ministered to the blacks were to be placed under such disabilities as should greatly limit or else destroy their usefulness. And to round out and complete the circle of despotism, this proposition was introduced:—"That if any thing is contained in any printed paper which may be considered seditious, or that may be adjudged so by any court which the governor may appoint, the writer shall be sentenced to hard labour in the penitentiary for seven years." It is idle to suppose that these measures will be sanctioned by the Queen; but they show what feelings burn in the breasts of the planters, and admonish us to receive with caution any statements which they may make concerning any other classes of the community.

This Jamaica "insurrection," whose, origin, growth, and extin-

guishment in blood have now been traced, has been the cause of we know not how many oracular warnings from the lips of those who have not been distinguished by any hearty attachment to the rights of the blacks, "See now," they say, "what is the peril of emancipating these blacks." Behold what comes of educating this people up to the capacity of mischief." "Acknowledge now that not even the gift of universal suffrage will elevate and soften a race at once sickle and ferocious. There is no safety but in keeping them under. Stop in your perilous experience while you can."

So long as the accounts of this outbreak are at once so conflicting and so coloured by party feeling, it may not be easy to say what are its positive lessons. But it is easy to tell some things which it does not teach.

In the first place it does not teach the danger of conferring the right to vote upon the negro, for the negro of Jamaica has never attained to that privilege. His traducers cry out, "What a race! The best fed, the best clothed, the best sheltered, the least worked peasantry on the face of the earth! Free! Free to make their own laws, to choose their own rulers, to govern themselves! And yet they are discontented!" Turn now and inquire what are the facts about their governing themselves. True, no law says the negro shall not vote, but the qualification is made so high that it is impossible that he should vote. In a country where the wages are scarcely a quarter of a dollar a day, he is required to have an estate worth thirty dollars a year, or an income of one hundred and forty dollars a year, or to pay taxes of fifteen dollars a year. Suppose, now, that in New England a law were passed that no man should vote who had not an estate worth two hundred dollars a year, or an income of one thousand dollars, or who did not pay one hundred dollars yearly tax,—and this, considering the difference of wages, is scarcely as high a qualification as that of Jamaica, and how large a proportion of our people would obtain the privileges of a voter? In fact, in Jamaica only three thousand vote, or about one twenty-fifth of the adult males. Is it not just possible that the discontent there may grow out of aspirations for self-government, and for the dignity and privileges as well as the name of freemen? May not the outbreak teach the danger of not allowing them to vote.

In the second place, this rebellion does not teach the danger of educating the negro; for the negro of Jamaica never has been educated. While the government has wrung from his scanty wages a million dollars, it pays the governor alone more than three times the sum it appropriates to education. It doles out for the education of seventy-five thousand children the pittance of twelve thousand five hundred dollars. Did not the negro himself eke out this bounty from his own little earnings, not one in a dozen of the children would ever enter a school-room or see a book. As it is, only one sixth part of the children are, or ever were, under instruction. And the instruction they receive is too often from persons themselves illiterate and full of superstition, but who are the best teachers who can be obtained with limited means. Consider, then, the real condition of affairs,—three

hundred and fifty thousand blacks, a large share of them children or grandchildren of those who were brought from Africa, with the wild blood of their fathers scarcely diluted in their veins, with all the old traditions of Fetichism and Obi worship fresh in their minds, altogether uneducated, or at best half educated; consider what virgin soil is here for every vile superstition, what a field for the demagogue to cultivate, and then decide whether it might not be safer, after all, to educate the negro in Jamaica.

This insurrection does not teach in the third place, the danger of obliterating the lines of caste; for in Jamaica those lines have never been obliterated or even made faint. It may be doubted whether there was ever a moment when the ill-dissembled contempt of the whites and the distrust of the blacks were more profound than now. An intelligent observer declared in 1850, that the gap between the blacks and whites had been steadily increasing ever since emancipation. And ten years later, the secretary of the Baptist Missionary Society records, "that as a general statement, there is no generous feeling in the relations between employer and employed. The negro can expect nothing but barest justice, and is lucky if he gets that." Can there be any safety for the minority, when the majority, which numbers fifteen to one, has such a sense of injustice rankling in its breast? One wades through the late reprints of the Jamaica journals, page after page, filled with coarse invective, with bitter denunciation, with injurious suspicion; sees with what terrible relish the sufferings of these deluded people are recorded; marks how the heroism which goes to the scaffold without a tremor and looks undeserved death in the face without a fear, is travestied; shudders to hear the planters, after thousands have been slain, yet cry for more blood; and then he puts the paper down and says, "Here in this language is material enough out of which to create a dozen bloody rebellions." How any race, with the blood of the tropics boiling in their veins, with the traditions of old oppressions burning in their memory, can ever forget or forgive this language is inconceivable. He is mad who does not see the gulf of caste, too wide before has widened and deepened almost unfathomably by the influence of the events of the last few months. He is mad, too, who thinks that Morant Bay, or the parish of St. Thomas in the East, with their unshrived dead, is a safer place for a white man to dwell in than it was six months ago.

It is too early to gather up all the lessons of this last of the almost innumerable outbreaks in Jamaica. They may never be gathered up. But one lesson stands out prominently, and that is, the safety of justice. We cannot bring perfect equality upon the earth. It is not desirable perhaps that we should. To the end of time, probably, there will be rich and poor, high and low, weak and strong, black and white. But we can be just. We can recognise every man as a child of God. We can grant to him all the rights, all the privileges, and all the opportunities which belong to a man. That is a lesson which Jamaica has never learned, and therefore she sits under the shadow of her mountains, by the side of the restless sea, clothed in garments of wretchedness.

VENICE.—*Notes of a Voyager.*

Have you ever made the voyage from Trieste to Venice?—'tis but a few miles across the Adriatic, and yet those enough to allow a very unpleasant sea to get up sufficient to disturb an otherwise quiet stomach. There are, however, other causes than this,—the company. If variety is really charming, the company of a foreign steamer must form one of those exceptions to which they say all general rules are liable. Our company, with which the vessel was literally crammed, consisted of the unwashed, of a sprinkling of every nation in this part of the world. Here we were huddled together above decks and below decks. As for a quarter deck walk, which you know is to us indispensable, it was not to be had, and the only way of making out the voyage was to select a position as free as might be from objections, and keep it for the voyage. You may imagine then the satisfaction with which we observed the summits of buildings rising as it were out of the sea as we approached the city of waters. Was Venice ever so designated? Surely one—the streets of which from the principal to the most obscure are formed, not of *terra firma*, but the muddy water of rivers—such a term is well applied, and might indeed be qualified with that little adjective which the smoky atmosphere of London has conferred on our metropolis. If a dirty atmosphere distinguishes the air of London, certainly dirty water does the same for the streets of Venice.

However, there were the buildings of Venice, growing taller as we approached them; and when within a few miles the whole city stood before us, developing itself in unmistakable domes and lofty elevated buildings. Arrived at Fecina, I was glad to take a gondola, and got through the passport ceremony with all becoming haste,—allowing the authorities to have their way, so that they detained us as little as possible.

We were now fairly in a labyrinth of muddy islands—a small archipelago of about a hundred, intersected by channels, or canals as they are called, crossed by a multiplicity of small bridges. The leading feature, however, of these canals is that the whole city is divided into two parts by a principal channel, called the Canale Grande, across which, connecting them, is the famous Rialto,—the observed, lauded, or condemned by every traveller who comes to Venice. And another remarkable feature is that each of these islands, that is, those on which the city stands, has its church, perhaps convent instead, and of course possessing those ornaments of Nature's own—trees: they seem to form each of them separate towns. Once within the barrier which the river delta has thrown up between it and the sea, or rather which the sea has thrown back on the delta, and all is quiet and still. There is no sea, no lift of the restless wave, all is still, and the gondola glides along in rapid but almost imperceptible motion. But the effect on the mind of the stranger at the scene before him as he thus approaches Venice is something different from every other. There seems, as it were, to

be a conventional arrangement on the part of the waters, a respect for the ancient city, to treat it with the utmost respect; all rude and violent motion subsides, and the very buildings themselves are reflected from the surface of the lagoons, as these canals are called, with a faithfulness which adds to the beauty of the place. And, happily for the city, there is a small tide, which, although only of two or three feet, does contribute something towards changing the water, which would otherwise become stagnant and injurious. There are some few larger canals, by which the communication is kept up with the sea.

Venice, with its suburbs, covers an extensive area of land and water (above three leagues in circumference), and its chief attraction is the quarter called the St. Mark. The celebrated Square of St. Mark with its splendid cathedral, the Piazzetta with its churches and palaces, its canals, with the Rialto Bridge over the principal, and all these springing as it were from the sea, form a feature to which the stranger has no little difficulty to become reconciled. The effect is perfectly magical, and he is half persuaded that he has actually reached a kind of fairy city, the houses of which, with all their magnificence, seem to be resting on the bosom of the waters. And to this delusion the very style of the architecture contributes. Of course this combines many, considering the changes to which the place has been subject, and the principal must be Saracenic, which imparts a barbarous character to the whole picture; and to this the numerous lesser bridges very much contribute, and which perpetually occurring take the traveller by surprise. Here he looks in vain for the splendid equipages to which he has been accustomed in European cities, our own *par excellence*; the beautiful specimens of the equestrian race of our own metropolis with their riders male and female. The Regent Street of Venice is a large canal, the handsome equipage an elegant barge; the minor vehicles are not ordinary carriages or cabs, but gondolas, dark, gloomy-looking canoe-like craft gliding about between the houses, the waterman's song breaking the silence of the scene as a substitute for our rattle of the wheel on the well-paved ground—many of the canals having a running jetty for landing, but more important in the principal; so that we land at our hotel, instead of driving to it in our carriage.

History tells us that Venice owes her origin to a handful of independent individuals, who chose the small island of Murano as their residence, and here laid the foundation of the present city. Freedom was their object, and to attain this self-banishment was necessary; yet they entirely succeeded. There they formed this little trading community, which gradually extended itself to an infant republic, which gradually augmented its wealth along with its people, and erected its first public buildings near the Rialto; and in course of time rose the magnificent buildings which now form the admiration of the world. Surrounded as they were by water, was it to be marvelled at that her people were maritime? The very element which they thus courted, with which they were thus familiar, which was at their very doors, was the mainspring of trade,—the easy means of communication, not only with neighbouring people, but by means of the sea with the

maritime cities of Europe. We need not be surprised at this, or that while our voyages at sea were few and limited in distance, that the galleys of Venice brought commerce to our very doors. To the Venetian youth thus distance was no barrier; even the boisterous sea was no obstacle, but to be overcome; and there was a native pride in making these long voyages in those dark and distant days of navigation, that was the pride and ambition of the youth of Venice to overcome. Doubtless there was profit in this trade; the rich silks of the East thus found their way to our shore, and even in the minor article of dried currants Venice could find a profitable trade with our ancestors. And this is dated as far back as the fourteenth century. In your last volume, in an interesting paper on the Flanders galley, were shown the complements of men and officers required for these galleys: we find they not only included captains and commodores, with their servants, but also pilots, scribes, and craftsmen; archers for their defence, who were under the command of young patricians, in order that "the noble youth of Venice might see the world, be inured to toil and peril, and learn to expose their lives for their native land." And with that chivalric feeling which placed the class of officer above the trader, it seems to have been an express condition in sending these vessels on their missions of commerce that the captain should have nothing to do with the commercial object of the voyage. We know that in those early days the crews of these galleys numbered 180 men, and trading as they did with any port between the Adriatic and our seas, we can easily imagine that, while their crews would be a hardy and dauntless race, their officers would be no less gifted in those qualities which not only form the seaman, but also the chivalric gentleman.

It is related in history that the sale of Bibles in those dark and dismal days formed even an article of trade; and it was in 1524, at the port of Almazarron, in Spain, that some officers belonging to the Venetian galleys were arrested by the Inquisition for selling Bibles with commentaries by the Rabbi Solomon Raschi, a writer of the twelfth century. The prisoners were conveyed to Marcia; nor could the ambassador, Gasparo Contarini, obtain any immediate redress from the Emperor, who assured him he would do everything to preserve the friendship of the republic. But the *inquisitors* had told him the delinquents had been arrested for selling books *against the faith! Bibles!* and so the world was kept hoodwinked in darkness by the *holy office*.*

And this is sufficient to remind us of that institution, which in those days was the terror of the age, and even down to a still more modern date the source of misery and sorrow in our happy land. That which was to be, and happily is, a blessing to us by our Almighty Creator, converted into a source of tyranny and oppression, even to the most cruel of deaths, by the interference of that arch-fiend, man himself!

Yes; among the *curiosities* of Venice must not be forgotten the

* See an interesting paper on this subject in our last volume.

remnants of its Inquisition; and although we had much to see that formed an object of so much interest from its well-known atrocities, that we could not help taking an early opportunity of witnessing with our own eyes that emblem of the tyranny of mankind over man. It appears that, in the period to which we have been alluding, all state trials as well as those of the hated Inquisition were carried on in the same court. This was in the Doge's palace—fit place for the hall of tyranny—which overlooks one of those narrow channels of water that divides that building from the city, and which channel is crossed by a bridge, named most appropriately the *Ponte de' Sospiri*. A better name could scarcely have been found for it, when the number of unhappy mortals are considered who crossed never to return. The Grand Council, consisting of three inquisitors, were selected from among the celebrated Council of Ten.

The first condition to which these inquisitors were subject was that of having no communication with their fellow-men, this penalty extending even to their own families, with whom they were not allowed to hold ordinary intercourse, to prevent all possibility of the dreadful secrets of their office from getting abroad. And for the same reason the Doge himself was not allowed to form one of this council. Their council room was hung with black drapery—fitting emblem of their cruel deeds; and as if this was not enough to instil a feeling of horror and hatred of them in the minds of those who came before them, as if to remind that no mercy awaited them there, the ceiling of this chamber of death was *ornamented* with representations of the instruments of torture and death which were certain to be employed upon the unhappy prisoners brought under their inquisitorial jurisdiction. This limited council of three, with its unlimited power, required but little space with their prisoner and his guards for their proceedings, and yet, limited as it was, it had two doors, one of which, we are told, was to bring the prisoner from his cell before the judges, and the other by which he was taken back to it,—a certain way of keeping him mystified as to communication with this chamber. A staircase led from each door, down one of which our conductor took us, and on reaching the bottom passages branched off in various directions to the different cells through darkness black as ink, or as the blackest deeds of which they have been the scene. But here a light became necessary, and having provided himself with one, our conductor pointed to a trap-door in the floor. This he proceeded to open, applying keys to its three locks, and we entered the narrow staircase beneath, and he following us let fall the trap-door with a dismal hollow sound. How often we thought at that moment has that sound struck terror into the heart of an unhappy prisoner! It rang through these unearthly abodes enough to chill the heart of any free-born Englishman in these glorious days, and fill him with sentiments of disgust at the authors and abettors of that disgrace to human nature, the emporium of which existed, if it does not now in some degree, in that wretched land now under Austrian rule, and sighing for its natural and now liberal-minded government. But here in this dreadful abode how often had that door fallen, and

while the spirit of the unhappy individual on whom it was closed quailed in agony of mind at its sound, he had to realise in bodily suffering to death the sentence which it assuredly conveyed! And how many thousands of lives have been annually consigned to eternity here, after enduring unheard-of torture and sufferings! And, alas, those who are gone for ever only could say what amount of torture they endured, while their three judges with cold ruthless hearts could not only condemn them to that suffering, but leave them mercilessly to the hands of their tormentors, all fiends alike in human shape! How often how many thousands of times even in this single prison have those lines been with truth applied that say—

Hope withering fled,
And mercy sighed farewell.

Not in that dark chamber, not in these dark cold vaults, but on that bridge of sighs, that Ponte de' Sospiri, that is the way to this dreadful place.

Another iron door at the end of this stair led us to another narrow dark passage, and from this passage, which formed three sides of a square, opened the doors of the several cells of prisoners. Another iron door terminated this passage, and another staircase, similar to that we had descended, led to another passage similar to that we had seen; so that here we had four storeys one over the other of cells for prisoners, the lowest being now nearly filled with water. What must have been their state of dampness when first constructed,—a quality which would certainly contribute to hasten the end of the strongest prisoner that was ever confined there. They have met their doom; blocked up with rubbish they have become useless, and may they ever remain so. But there is method in man's works, and even here it was carried out, not in its cruelties alone, but in the certainty of recognising the prisoner, however his sufferings might have changed his features so as almost to render it difficult to recognise a human being. The cells out of these passages have neither light nor air, but they are known by their numbers cut in the stone roof of their door, and which can only be read by the light of a lamp. As to size, small they are; when even vaulted, they will not allow of a man standing upright in the middle. It was an iron age even that in which they were constructed, and their only furniture consists of an iron shelf and a broad board, which served for table, bed, and seat besides. These very walls were broken into by the French, and our guide informed us that they found one old man a prisoner who had been there twenty years. He was afterwards removed to one of the Greek islands, where he lived some time.

After leaving these cells, our conductor took us out by the Ponte de' Sospiri to the public prisons, and it was here he informed us, on showing us another door, now bricked up, that when a prisoner entered that door his earthly career was over. A short interval longer he was strangled, and his body committed to the canal, to be carried off by the tide.

It may be readily supposed that we left this place of torture and death with no pleasing reflections on that religion which ever established so much iniquity under the mask of doing God a service, but in reality the device of His wicked creature man, who hesitates not to gloat on the blood of his fellow mortal when he can attain his own vile ends.

One of the most splendid parts of Venice is decidedly the Grande Piazza di San Marco and its Piazzetta. At one end, and indeed forming it, stands the magnificent church of St. Mark, and at the opposite a very handsome church built by the French to replace one pulled down by them. The Piazza is oblong, and the two long sides contain handsome large buildings, in which are public offices, cafés, and the artists in gold, these parts being sheltered by arcades. This being the principal church in Venice, there stand three flag-staffs in front of it, on which were displayed in former days the flags of Cyprus, Rhodes, and the Morea, captured in the naval battles of the republic; but now they stand bare and neglected. This piazza may be considered as the chief rendezvous of fashion and *haut ton* in Venice, the fashionable lounge in fact, and close to it is the Piazzetta, in a line with the side formed by the church of St. Mark, and this is open to the port, where there are two remarkable pillars, on one of which stands the figure of the guardian apostle, and on the other the celebrated winged lion of St. Mark. Here close by stands also the old palace of the Doges, and opposite to it the Mint and the residence of the present governor, overlooking the port. Here also, at the meeting of the two squares, is a small handsome building, which contained the records of the city; at least such as were left of them from fire and plunder. True, all these buildings are formed of marble, rich and elegant; for our guide told us that St. Mark's Church itself contained in its front no less than five hundred marble columns; but their fresh and bright appearance is gone, and no renewing hand has come to restore their lost lustre, and an appearance of squalidness is now their distinguishing feature: in fact, the front of St. Mark's Church itself appears so low that it seems as if it were gradually sinking in its own rubbish. The interior is gloomy and dull, and not all its mosaic work, with which it abounds from floor to ceiling, saves it from a dull and dismal gloom. It is said to bear some resemblance to the church of St. Sophia at Constantinople; but whether this has originated from the silver doors of the principal gate having belonged originally to that church is for others to say. The brazen steeds of Lysippus stand over this entrance, the trophies of the successful arms of the republic in former days.

There has long been a schism in the history of these lions of Venice, the brazen steeds of Lysippus; where they really came from, in fact, their birth, origin, and descent, and indeed, if you please, also their material, although this is not disputed as being bronze. But from whence? It is said that a controversy arose on the whole subject from the discovery of some ancient Greek manuscripts; of course in the library of St. Mark. By these documents it would appear that the foundry from whence they came was in the island of Chios in the

reign of Theodosius, and therefore that they were not made at Corinth; nor are they of Corinthian brass, nor were they taken to Rome by Memmius or to Byzantium by Constantine, although when under Enrico Dandolo the Venetians captured that city by assault. However, it appears now that these manuscripts have been subject to a more rigid examination; that they are not genuine; and therefore all this falls to the ground, and the bronze steeds are as much as ever the subjects of speculation as to their origin, and they may yet be admired for their exquisite symmetry, although their origin is still in the clouds of obscurity. Perhaps this invests them with still more interest. It is said they have figured in Paris, from whence they were once removed from a triumphal arch by the hands of British seamen: how true this is I dare not vouch; but it is clear enough from an inscription, in no less than gilt characters beneath them, that Venice has recovered them by the fiat of Francis the First, Emperor of Germany.

By some mistake the arsenal of Venice has been omitted in my present notes, and yet it is close to us, or at no great distance from St. Mark, and opens on the port. The entrance to the building is commanded by two towers, and over the gateway appears the winged lion of St. Mark, and guarded by enormous Athenian lions captured at the Piræus, in that siege of Athens by the Venetians when the temple of Minerva was shattered by the bursting of a shell, ever since which it has so remained. At the time of our visit, a Turkish flag, taken at Lepanto, with some Damascus muskets and other Eastern weapons, were huddled together in promiscuous confusion; but that which most attracted our notice—indeed, admiration, I may say—was a curious antique mortar, said to have been the work of no less than a Venetian senator, formed of—leather and cord! Who shall say after this, when the besieged town had various artists proposing their different specifics for its fortifications, that the proposal for employing leather was a myth? However, of the service which this wonderful engine rendered history is unfortunately silent. More in my next.

THE MARIANAS ISLANDS.—*Piedras de Torres, Guguan, Atumagan, and Pagun.*

(Continued from p. 309.)

The *Piedras de Torres* are the same as shown on Espinosa's chart, with some error of position. The *Uranie* not having seen them in 1819, and having mistaken Guam for them, they disappeared from the charts; and it was concluded that the passage North of the Isle Sari-gnan was free from dangers.

In 1858, the commander of the English ship *Zealandia*, stated that he had seen this reef, bearing N. 15° E. (true) from Sari-gnan eleven to twelve miles, and it was accordingly placed in the chart as

the *Zealandia* Rock. In the French edition of Horsburgh's Directory, and in the Spanish Hydrographic Office work of rocks and shoals discovered in 1859, the same as in other works, the following account of this danger appears. The *Annales Hydrographique*, vol. xvi, p. 357, says:—

"The *New Zealander*, on her way from Shanghai in December, 1858, shaped a course to pass between Sarignan and Farallon de Torres (Marianas), as it appeared to be free from dangers in the chart.

"On the 31st of December, 1858, at four in the afternoon, Isle Sarignan bore S.S.W. twelve miles: the wind light from East, the vessel steering W.N.W., and running about four miles an hour, when breakers were seen ahead. Two extensive reefs were seen about three fourths of a mile ahead of the ship. The course was altered to pass North of them about half a mile. At 4h. 20m. Sarignan bore S. 17° W., about eleven or twelve miles, and the breakers were about half a mile in the direction of the island. The two heads bore N.b.E. and S.b.W. of each other, about three cables apart. The sea was dark between the two heads, the same in fact as round them, and broke heavily on them occasionally.

"I regretted that the uncertainty of the weather, the close of day, and the fear of being in the vicinity of such a danger on a dark night prevented me from sending a boat to examine the details of this reef; but it was quite clearly seen by my officers and crew, and all agreed in the foregoing description of it.

JOHN FOSTER,
Commanding the Ship "New Zealander."

I have already said that this danger is really the Piedras de Torres, and by this name it has been known for the last fifty years among the islands. Its existence is undoubted.

The *Narvaez* found fifteen wrecked persons on Agrigan and Pagan. They formed the crew of a launch, the only pilot craft in the Marianas, which left Agana for Agrigan, in July, 1863, to found and commence a small establishment for curing fish; and after leaving ten men at Agrigan, she was lost on Pagan in the gale of the 11th of August. This craft was all but lost on the Piedras de Torres on her way from Agana to Agrigan. They took no heed of them, like all Indians, and did not see them until nearly on them. All these persons have seen the reef. One of them, named Salas, a sailor of intelligence and a superior person, when he was wrecked on Pagan in the launch, like another Robinson Crusoe formed a canoe out of the trunk of a tree, and crossed to Agrigan to apprise his companions of the wreck; thus traversing forty-two miles of the Pacific Ocean and passing three nights and days in his miserable craft, with nothing to eat but coconuts. He gave me this account of the reef. There are three rocks awash with the surface; each one being as large as a boat, (was his expression,) and they are a cable's length in extent, more or less.

Near them the sea has no signs of bottom, and in fine weather there is no break, except at very long intervals. This man Salas, as well as the pilot, whom I had with me, have told me that they have frequently passed near these rocks; and according to them they have seen two at low water of spring tides.

I was in their vicinity on the 12th of January under easy sail with little wind, but was as unfortunate as the *Uranie*, for I did not see them. In the morning I was fourteen or sixteen miles to windward of them, and the wind failing I ordered the fires to be lighted at noon; but some repairs were going forward in the machinery, and we were unable to get the engines at work until five in the evening. When looking for the rocks night came on, and with it the wind freshened up, which all day had been light. As my instructions required me to be at Manila by a certain day, I could not detain the ship, and was thus obliged to leave them.

The position of this danger, according to the *Zealandia*, will differ very little from the truth. The direction in which the Indians pointed to them from the Isle Sarignan was nearly the same as that where they are laid down on the chart.

However, while we cannot correct its position, it should be passed with the utmost care; for in fine weather it is a rock of the most dangerous description, as it can neither be seen, nor any signs of it, until the ship is upon it.

Isle Alamagan is that which the modern charts call Farallon de Torres.

It is small, rather more than two miles long, and one wide; of moderate height, with two slight risings. The whole of its shore is precipitous and all of it bold, with no outlying reefs: the sea breaks against its very cliffs. It resembles much the Isle Medinilla, and seems to have neither anchorage nor landing place. Its wall-like shore is everywhere high, and on its N.E. side is lowest; but even there it seems to offer no landing place. The whole island is covered with vegetation.

The geographical position of Guguan precisely agrees with that of the Farallon de Torres of Duperry's chart, and its appearance with some description of it as is given by Findlay in his Directions.

Isle Alamagan is the same which modern charts call Guguan. It is a large high volcanic rock, about 2.5 miles from North to South, and one from East to West. It has several peaks, the northern of which sends forth smoke. Duperry's plan of 1819, which calls it Guguan, gives a very good account of its contour and dimensions.

Alamagan seen from its western side looks low, and like a large mountain of lava. On the S.E. side it is nearly vertical, and without vegetation, excepting a little moss overhanging a rock. But its sides are quite bare, and the rock of a reddish colour. On the N.E. side there is also a very wide extinct crater, about half a mile across, not open at its summit, but consisting of volcanoes which break out on its sides; so that from the sea an immense opening may be seen, like an

oval funnel or cave, which is a circular crater. When the island is seen between South and West, the interior of this deep crater is fully exposed.

To the West of it Alamagan is seen with its two peaks; from one of which, on the 11th of February, smoke was seen to escape in large quantities. The South and S.W. sides of it are also very steep, and the N.W. side not quite so steep. On the Western side the whole face of the mountain is broken with ravines filled with vegetation, which is thicker in the lower than on the higher parts; so that at a distance the whole island appears clothed with a green vesture, having deep wrinkles and folds from top to bottom.

The shore is everywhere precipitous. It has no reefs, nor any appearance of a landing place; and the only likely place for one would be on its N.W. side.

Two sets of good observations on different days and at different distances give the island 2498 feet (2316 English) above the sea. There was not a cloud to be seen when they were made, and the island as clear as possible.

The appearance of Alamagan completely agrees with the description which Findlay gives of Guguan, and its position with that of Guguan in Duperrey's chart. This officer's plan of the island gives a sufficiently good idea of its contour and size; but its topography is all wrong; for the details which he gives are entirely different from those we saw.

Pagan is the island called Alamagan on the charts. It has nearly the same contour and size as is shown by them; that is, about 8 miles long and 2.5 wide, lying nearly N.W. and S.W. From a distance it appears as if it were two or three islands, for its two extremes are high and are connected by a deep valley. It has three active volcanoes on it: one on its N.E., and the others on its S.W. part. The first is a conical mountain, which when we saw it was throwing out thick columns of smoke as we passed on the 5th of January. The other two, which are to the S.W., are open craters in a huge mountain which terminates the island in that direction. One of them, which we saw on the 10th, is enormous; and the other was throwing out flames. The valley in the midst of the island is formed of dark sand, on which flourish an innumerable quantity of shrubs. The tropical vegetation reaches almost to the summit of the mountains in spite of the volcanoes, excepting on the N.E. cone, which is nearly destitute of any.

There is very little water on the island; notwithstanding, pigs and fowls were there in abundance.

It was on this island that the pilot boat was wrecked as above mentioned. Her crew consisted of six men; one of whom left for Agrigan in a canoe made by himself, and the other five were living there for five months,—from the 11th of August, the day of their wreck, to the 10th of January, on which day I found them. They inform me that on the slopes and in some parts of the level ground the heat of the soil is so considerable that one cannot sit down on it, nor stand for any length of time.

The *Narvaez* anchored on the N.W. coast, which towards the middle

of the island forms a kind of cove. The anchorage may be known by a huge dry rock on the beach, and which at six or seven miles off looks like an islet. At three or four cables North of it 14 fathoms rock and coral was found, which depth and character continued to half a cable from the rock. There the shore is of black sand, with a good many large rocks in it, and the surf breaks on it with great fury. The landing is consequently very difficult. The boat's bow touching the beach, her stern will be in 2 fathoms water. The waves are very high, and I found from being some time there that the boat was very easily capsized and thrown on the beach.

About a mile N.E. of the rock off which the *Narvaez* dropped her anchor there is a low flat sandy beach, where I thought the anchorage would be better and the landing easier. The colour of the sea indicated shoaler water with sandy bottom, and the surf was not so great there. The pilot, however, did not know anything of it. After anchoring I visited it, and the little time I remained at Pagan prevented my surveying it. I believe, however, it should be preferred to this; for bad as it might be, it could not be worse than that which I had selected. To find it, all that is necessary is to lay the ship's head for the rock above mentioned,—a capital mark for it,—and when at two or three cables from it to sheer to port and anchor. I must be excused for advising what is done by every ship; that is, in taking any of these anchorages of the Marianas, the leads in both chains should be going, the ship kept under small sail.

This low beach is formed by a narrow tongue of land, which separates the sea from a large lagoon inside of it. The governor of the Marianas thought, by cutting this, it might be formed into a good port. But for my part, I think it is but the edge of an old crater, which has been choked by the sea. Even were it not so, a port in a *desert island* would be of no use; *one* which in an extent of eight miles has three active volcanoes!

The anchorage is wretched; entirely rocky, with but little shelter very near the wild rocky shore, which is nearly perpendicular, and besides full of holes. During the night I remained there we had several squalls; the vessel dragged her anchor, and only brought up two cables from her berth.

In the Southern shore of the island there should be some anchorage, but it is still more exposed than the Northern; and on the South side, close to the S.E. point, Pagan has three high sharp rocks, one of them quite a needle. From a distance these appear as if they were islets free of the shore, similar to that on the northern side; but they are about one or two cables only like that near which I anchored. Near these rocks and to the southward of them, it is possible that anchorage may be found.

Pagan has a kind of celebrity among the Marianas, on account of a treasure which is supposed to be concealed there. The history of it is rather curious, and might form the subject for an interesting novel, of which the outline may be stated in a few words.

About the year 20 or 22 of this century, the governor of the islands

being Senor Medinilla, an English schooner arrived at Agana, with a very small number of hands for her crew. The captain represented that his vessel had fitted out at Sydney at the expense of a person who said that he had a treasure at the Marianas Islands; that he had come to recover it (the person himself being in the vessel); that once when he was at the islands they had attempted to assassinate the captain while on shore in one of the islands, and not having succeeded in doing so, the person had escaped with a boat, in which he had run to the northward in the archipelago. He added that he believed the treasure was concealed in the Island of Ascension, where he was with a large amount of money accumulated and some gold and silver ornaments which had been plundered from the churches of a town in South America.

It was said that this man had been in command of an English brigantine, which had anchored in some Chilian port during the war of Spanish independence. The place being on the point of falling into the hands of the enemy, many of their valuables were embarked in her for safety, with all of which the captain sailed one fine night without a word of communication to their owners. One bad deed is generally followed by another. Not trusting his own crew of the vessel, he is said to have hidden the treasure in the Island of Ascension with the help of one of them, whom he assassinated afterwards. He then took his vessel to the China coast, where he set fire to her, and thus got rid of the rest of the crew; and wandering about from place to place, he eventually stopped at Sydney, where he fitted out another vessel and came with her to the Marianas.

Such was the story of the captain of that vessel at Agana. The schooner was manned by persons of bad character, who looked more like robbers than sailors. Nevertheless she had been allowed to sail, and certified as all right by the authorities at Sydney as bound to the coast of China. Senor Medinilla, who considered this was an extraordinary affair, determined on detaining the vessel at Agana, which he did in spite of the protestations of the captain. In Umata there was a merchant vessel of his own which made voyages between the Marianas and Philippine Islands, and he sent her in search of the man who was said to have escaped. This man was eventually taken by the vessel beyond Sarignan in a boat, with which he was running to the northward. He took him on board as prisoner; and being unable to make him confess where he had concealed the treasure, they adopted one of those proceedings which are not uncommon at sea, and the captain in fact gave him a good cudgelling.

He had found sewn up in the lining of his jacket a paper, which said that the plate was in a certain place mentioned, to be found by marks and distances; the former being cut in trees, and the place of landing was in lat. 18° 20'. But all this was written in a vague, indistinct way, and wanted something more definite. However, he had confessed on undergoing the punishment that he knew the treasure was in Ascension; he further stated that the captain might take him to that

island, and when he was there he would show the place where the treasure lay.

The vessel therefore went to Ascension, and having arrived a boat was lowered. The prisoner being invited to go in her, descended the ship's side as if to do so, but with one foot he pushed the boat aside, dropped into the sea, and never reappeared!

Soon afterwards it was discovered that some heavy weights which were in the vessel were gone, and it was concluded that he had concealed these about his person in order to sink it. Such is the history of this treasure; one which, like every other, has its epilogue.

The paper which had been obtained from this man mentioned the trunks of cocoanut trees in lat. $18^{\circ} 20'$. The Island of Ascension is quite deficient of those trees, and there is no island in the latitude mentioned. But in consequence of Pagan having plenty of those trees, it has been supposed that this was really the island. Senor Medinilla sent persons to search, but without success. Other attempts to find it have also been made, but with the same result; and with all the investigation nothing has been discovered. The secret, if one there be, is preserved by a corpse in the sea.

This story is said to be so far authentic, that it cost the governor of the Marianas, as I am told, the sum of twenty-four thousand pounds for injuries which the English schooner sustained; the proprietors of which vessel claimed the expense of her detention and employment in the business, as having been declared illegal. Such in fact was the final result of the whole affair.

I have had in my possession for some time the translation of the paper in the possession of the Englishman when he was taken, and the instructions which Senor Medinilla gave to the person whom he sent to Pagan to seek for the treasure. These documents were brought on board the *Narvaez* by the present governor of the islands, in case, during our excursions among the islands, we might see anything that would correspond with them.

I must confess that I have not given any attention to the affair. I am rather of an incredulous habit, and I do not believe that a second Monte Christo is to be found in the wilds of the Pacific Ocean. But having examined the paper, one must believe that the treasure consisted certainly of something which could not be concealed in Pagan, but might be in Agrigan. Now Pagan has been searched, tree by tree and rock by rock, in this part for forty years without anything having been found; while the desert isle of Agrigan has been frequently visited by whalers, who have gone there to embark pigs and to salt down their fish. It is not impossible that, if ever the treasure existed, it may have been carried off by some whaler. When I showed Senor la Corte that it was more likely the treasure was concealed in Agrigan than in Pagan, he remembered having heard said that a whaler had found a barrel of salt fish in a cave of Agrigan!

This, in fact, was the treasure. A barrel of silver, in money, was what the Englishman hid in one of the northern islands of the Marianas.

A barrel of forty or fifty thousand dollars is certainly a treasure for a sailor. It is probable that some one in America entrusted the barrel to the captain of the brigantine, and that he was tempted to plunder it: that would explain the whole history. The rest is most likely an invention, about the church utensils and other valuables supposed to have formed part of it; for if this were true, the proprietors of the church property would have published to the world such a sacrilegious transaction. The tragic end of that man is another proof that the affairs of this world are watched over by a righteous Judge, and that His justice reaches individuals in a manner beyond our comprehension. And I consider that the barrel of dollars by the whaler seems to show that he would be losing time who could persuade himself that there is yet anything concealed, or would give himself any trouble about it.

The appearance and astronomical position of Pagan everywhere perfectly coincides with the description which Findlay, in his Directory, gives of Agrigan, in which position the charts lay down Alamagan. It is evident that a mistake has been made of the name both in charts and books.

The island called Pagan in the chart.—This I have shown does not exist. It was laid down in Duperrey's chart in 1819 in $18^{\circ} 15' N.$ and $143^{\circ} 40' E.$ of Paris. In the Spanish chart published in 1862 by the Hydrographic Office, it is laid down in its proper latitude, and in $151^{\circ} 59' E.$ of San Fernando. It has no existence, nor the islets represented off it on its southern side; consequently there is nothing to be done but to erase it from the chart.

(To be continued.)

REMINISCENCES OF JAPAN,—*The late Operations of the Combined Fleets.*

(Continued from page 295.)

In the midst of these events Colonel Neale was informed by an official notation that the first instalment of the indemnity would be paid on the 18th of June. Every one congratulated himself that such a course would quell all apprehensions, for it seemed to remove all prospects of war. Two days passed without any step being taken in making good the promise of government. On the 20th of June the English chargé d'affaires informed his colleagues that after this last flagrant breach of solemn engagements, he was compelled to break off all diplomatic communication, and should place the question in the hands of the commander-in-chief of the British forces. On the following day Admiral Kuper announced that he would suspend hostilities for eight days, unless the Japanese commenced it themselves. Stating that he should quit the roadstead on the following day, giving notice to the

inhabitants that he would be unable to defend them against an attack from the interior. The whole population of Yokohama held itself in readiness to depart at a moment, and embarked their valuables on board the ships in the roadstead.

Previous to this panic Admiral Juarez considered that the most decided course would be the most effective. He gave notice of his intention to remain at Yokohama and to protect the residents of every country by all the means in his power, and making this known to the foreign ministers he also informed the governors of Yokohama of his intentions. The course of events showed that in this step he had not exposed the flag of France to a dangerous enterprise. The Japanese had no other object by their delays than to obtain the evacuation of the town by all the powers, so that they might engage the British squadron only at some other place. They were therefore disappointed at the resistance of Admiral Juarez, and unable to renew communications with Col. Neale, they determined to appeal to the French authorities. At the first interview, which took place at the French legation, between M. de Bellecourt, Admiral Juarez, and the Japanese governors, these resorted to their usual theme. They attributed the non payment of the indemnity to the opposition of some members of the *gorodjo*, and their conviction that this payment would be far from securing the safety of foreigners. They acknowledged for the first time that the protection of the town to the foreign residents at peace with Japan, and they promised to settle this point with Admiral Juarez, of whom they demanded besides protection from the *lonines* and the *daimios*. They expected, moreover, that hostilities with the English should not be extended either to Yokohama nor even to Yedo. Admiral Juarez replied to the governors, that while hostilities were required not to be extended to the bay of Yokohama, the Japanese government, by breaking its recent formal promise, had in reality declared war with Great Britain, and that, moreover, in ceasing to protect the subjects of other powers he might give occasion to them to take arms against him. The care of the public interest therefore obliged the admiral to undertake immediately the protection of the town, and he was therefore determined to prevent it from being invaded by Japanese troops. The conference was renewed the following day on board the *Semi-ramis*, and it was stipulated after some discussion that the native troops should remain outside of Yokohama, and that the protection of this port should be left exclusively to the European troops. One of the governors promised to go to Yedo and inform the *gorodjo* of these arrangements, and he insisted also that the protection of the town should meanwhile be notified officially as being left to the French commander-in-chief.

Admiral Kuper meanwhile was preparing for coercive measures. The first step which presented itself was to seize the Tycoon's vessels that were lying in the gulf of Yedo. On the 23rd of June, 1868, the English corvette *Pearl* and a gunboat appeared off the town, and commanded the channel to the head of the bay, when it was at length announced that the Japanese consented to pay the indemnity forthwith,

the amount of which was already deposited at the custom-house. In fact, in the middle of the night of the 23rd to 24th of June, the governors of Yokohama came to the French legation and requested an audience of the chief. The gorodjo, they said, profiting by your advice, and that of the French admiral, has decided on paying the English. We have the necessary funds at the custom-house; but as we cannot and do not wish to have any communications with the English authorities, we propose placing the sum in your hands. Thus the affair will be concluded, unless it is too late for the British minister to receive payment. M. de Bellecourt replied, that he could not take on himself the office of mediator on this subject, but he consented to intercede with Colonel Neale to bring the difficulties to a satisfactory conclusion. Thanks to his mediation this was happily effected. An hour after, the English chargé d'affaires informed the governors that he would renew pacific relations if the payment of the indemnity was made before seven on the morning of the 24th. By break of day a collection of trucks, escorted by Japanese officers, left the custom-house for the British legation. The Japanese on this occasion were true to their word, and deposited the £110,000 in good Mexican dollars.

Thus was happily terminated, after two months of parleying and excuses, the first affair in the matter of Richardson. In a couple of days confidence was reestablished at Yokohama, and commerce again commenced. But Admiral Juarez was aware that it was no time for repose. At his request the gorodjo addressed him in the beginning of July as well as Admiral Kuper letters in which the protection of Yokohama was officially made over to them, and they were authorised to concert measures as they pleased with the commanders of other foreign vessels anchored in the road. A common cause of action with all the different flags was the result of this. But the admiral did not stop here. At the most critical moment of the quarrel, he had sent to Shanghai for the corvette *Le Monge*, of 250 men, of the 3rd African battalion. And at the same time Admiral Kuper, foreseeing that he might require troops for landing, had required from Hongkong and Shanghai one or two regiments of infantry. This was a simple request, occasioned by the unforeseen important course of events, for without an order from home the military forces do not in general act with the naval. So as the military authorities of those places did not consider the occasion of sufficient importance the request of the Admiral was not complied with.

But the arrival of the French troops enabled Admiral Juarez to establish a patrol around the foreign quarter of the town, and the relief at night was contributed by contingents from all the other powers. Besides which, a body of marines with small arms was placed on one of the hills near the European town, which commanded both the roadstead and the approach from the country. Thus, in case of nocturnal attack, the troops would be enabled to assemble at any particular point while the ships could send reinforcements to them with their boats. So that assailants might be repulsed, or if the defence of the town be-

came impossible, the foreign residents and consuls might have time to embark and take refuge on board the ships of war.

While these important precautions were being adopted and even the day after the payment of the indemnity was made an incident occurred which seemed to bid an audacious defiance on the part of the Japanese. One of the Tycoon's ministers who had brought the definitive order from Yedo to the governors to satisfy the claim of the Europeans, addressed the following letter to all the foreign consuls:—

“I have the honour to communicate to your Excellency by this letter, that I have been authorised with full powers to treat on the subject which follows.

“I have received the orders of his Majesty the Tycoon, who himself has been authorised by the Mikado, to close the open ports, and to send away the subjects of those powers that have concluded the treaty, in order that our people may have no communication with them: and that further reference will be made to your Excellency on the subject.

“Delivered with all respect this ninth day of the fifteenth month of the third year of Boukivu, 24th June, 1863.

“ONGASAWARA DZOUZIOU NO-KAMI.”

The governors at the same time declared to the English and French ministers that if the Tycoon had given this order it must have been in obedience to that of the Mikado, the sovereign power, who had not been able to confirm his policy: and this decree of expulsion would not be carried out. The foreign consuls not knowing whether to treat this stupid affair with seriousness or not, gave it the merited answer, stating they should place the execution of the treaty in the hands of the European forces. Some days after, also, a member of the second council of Yedo, Prince Sakai-Hida-no-kami, came and demanded an audience of the French admiral on important matters. On the 1st of July he went on board the *Semiramis*, with M. Bellecourt. Being requested first to explain the late order as to the expulsion of foreigners, he reiterated the declaration of the governors. “It is the first time (he said) that the Mikado, deceived by the accounts of foreigners, has given an unjust order; the Tycoon sent it, and the government of Yedo duly noticed it, knowing that the order could not be executed. Our object now is to go in a large number to Kioto, where our Tycoon is surrounded by enemies seeking to dethrone him and to replace him with another. We are for restoring him his liberty, which will enable him to justify his proceedings and allow the Mikado to carry out his wishes.”

The damio concluded this with an odd request. He requested the admiral to let him have one or more of his ships of war to assist in transporting under the Japanese flag the troops which it was necessary to send as soon as possible to the port of Osaka. To which the admirals replied by offering to support the Tycoon by appearing off Osaka, where they would, at the same time, resist the Japanese troops; but so evident a manifestation did not coincide with the views of the Vice-Minister Sakai. To restore order in the country the government

of Yedo, according to him, never had to employ force. If he failed in his enterprise he would frankly accept the offer.

In another conference on board the *Semiramis* on the next day, at which the English authorities were present, the vice-minister was authorised to take up any English merchant steamers for Osaka that were in the roads; and another incident terminated this conference. The foreign residents of Nagasaki had been thrown into alarm by the number of Japanese troops that were assembled on the heights which surround that place, and, according to the vice-minister, they required to know why this surveillance was to be kept up without any object. Sakai agreed to write immediately to the governor of Nagasaki, and his letter was sent by Capt. Kiengan, the commander of a small steamer going to China, which vessel was directed to pass through the inland sea of Japan, and to stop at Nagasaki for the performance of this duty.

On the 9th of July and some following days a considerable movement of Japanese troops took place in the vicinity of Yokohama. The mercantile steamers hired by the vice-minister hoisted the Tycoon's flag, (a white flag, carrying in the middle of the field a red globe, considered the emblem of the rising sun,) and took on board a number of officers and detachments of infantry. They marched to the boats in their white coats, their lacquered hats, their pouches and belts. The vessels departed one after the other, and took a southern route. Was this to be a simple demonstration of the Yedo government, desirous of showing its superiority at the compromise of the Tycoon, or was it the commencement of a civil war in Japan? Certain it is that the events of which the inner sea was soon to become the theatre left no doubt as to the real opinion of the daimios in regard to strangers.

To the southward of the island of Nipon, which is considered the principal of the Japanese empire, the two islands of Kiousiou and and Sikok with the two South points of Nipon include within them a veritable inner sea, which is entered by three channels. A vessel leaving the Bay of Yedo, after following the coast of Nipon, arrives at Kiwo, the eastern channel into this sea. Continuing her route to the westward for a hundred miles, she will still be in these smooth waters sheltered from storms; then leaving them by the western entrance, she will enter the China Sea by the Strait of Simonosaki opposite the Corea. But, instead of passing through this strait, she may take a southern course, and leave this inner sea by the Boango Channel between the islands Sikok and Kiousiou. The first of these routes is well known to steamers running between Shanghai and Yokohama, and for those bound to Nagasaki it is very much shorter; and the general quietness of the channel, as well as this extensive sheet of water from the height of the mountains by which it is surrounded, generally ensure a pleasant and safe navigation. A large number of daimios have their residences on the borders of this inland sea and on the numerous small islands about it; in fact, these islands and the neighbouring coasts are the most populated and richest parts of the empire. At the head of a bay not far from the eastern entrance of

Kiwo is the town of Osaka, a great commercial centre of Japan, to be opened on the 1st of January, 1867. At the western end of this channel, which is narrow and commanded by high ground, on the Nipon shore, is the ancient town of Simonosaki, from which the strait derives its name.

Whether by the vessels of war or commerce that daily run through this strait, numerous forts have been observed on the different points, especially at the narrower parts and about the villages, from whence it may be concluded that the Japanese, like other maritime nations, are anxious to keep their coasts in a state of defence. When ships anchor in the strait about sunset, the boats' crews, who generally land to obtain provisions, are well received by the people. In June 1863, the French corvette *Dupleix* was well received everywhere excepting at one place. One evening, on anchoring off Simonosaki, the commander observed some boats containing Japanese officers coming towards the ship; and they soon formed a line like a *cordon sanitaire* around the ship, driving off rudely some trading boats that wanted to come with eatables to the ship; in fact, keeping everything from coming near her. The *Dupleix* sailed the next morning about daylight, without troubling herself with this state of things from the town of Simonosaki. It was very well known that the place belonged to the Prince of Nagato, the daimio Matsedaira-Daidsen-no-Daibou, already known to be with the Prince of Satsuma at the head of the nobility opposed to foreigners. However, a few days after this, another event of a much graver nature attracted attention.

On the 25th of June, 1863, the steamer *Pembroke*, an American merchant vessel, on her way from Yokohama to China by the Suwonada Sea, arrived about three in the afternoon off the inner entrance of the Simonosaki Strait, and anchored off the little town of Tanaowra, on the South shore of the strait, and hoisted her colours. Two hours afterwards an European built ship with Japanese colours anchored about two cables from her. At the same time a gun was fired from one of the hills about four miles to the northward, and repeated from other parts of the coast. The night came on, and everything remained perfectly quiet. But about one in the morning the Japanese ship, which had got nearer to her, suddenly opened her fire on the *Pembroke*. Fortunately the darkness of the night rendered her position somewhat obscure, but the captain immediately tripped her anchor; and immediately afterwards a brig, which was known to belong to Prince Nagato, the *Laurick*, passed within half a cable of the *Pembroke* and anchored close to the Japanese vessel, and in her turn opened fire. At this moment the *Pembroke*, which had got under way, backed out of the way and got through the Strait of Boungo, followed by the last shot of the two vessels, a shot having crossed her bows.

The news of this transaction reached Yokohama on the 10th of July. The American corvette *Wyoming* departed the next day from the roadstead to chastise the authors of this unjustifiable attack. The French despatch boat *Kienchan*, which had gone in the beginning of July, had taken the same route as the *Pembroke*, and was in the strait

soon after. It is considered that the Japanese ships cruising in these seas would not have dared to attack a ship of war. The *Hellespont* mail steamer, arrived on the 15th at Yokohama, brought a sad story. The *Kienchan* had arrived in the Strait of Simonosaki on the 8th, and had been fired on by the batteries of the North coast belonging to Prince Nagato and by two of his ships. With much difficulty she had escaped this downright attack, gone through the strait, and continued her course for Nagasaki. M. Lafon, the commander of the *Kienchan*, having fallen in with the Dutch corvette *Medusa* on her way to Yokohama, had given her a detailed report of the event; and then confiding the letter of Prince Sakai to her for the governor of Nagasaki, shaped her course for China.

It seemed then to be clearly evident that one of these great daimios, in his semi-independence, notwithstanding the peace, had suddenly attacked a ship carrying the French flag; and what added weight to the offence was, that she was a ship of war representing the country whose flag she carried. Therefore Admiral Juarez resolved immediately to go himself and inflict summary punishment on the Lord of Simonosaki. Notice was therefore given of this intention to the gorodjo, and some hours after the arrival of the intelligence the *Tuncrede* received orders to put to sea. She was to act as an advanced guard, and sound the channels of the inland sea. The same evening the *Semiramis*, with African troops, sailed for the rendezvous appointed for their meeting in the Boungo Strait. The two corvettes *Monge* and *Dupleix* remained at Yokohama for the protection of the place. Admiral Kuper, prepared for sailing with his squadron for Kagosima, promised to await the return of the *Semiramis*, and offered Admiral Juarez the assistance of a ship. But this was not accepted, as the admiral preferred acting alone to revenge the insult offered to his flag, and not by a junction of forces to interfere with the navigation of the strait, but rather to prevent the repetition of the affront.

On the 16th of July, 1863, the admiral left in a heavy rain, passing through the Strait of Ouraga, and stood out to sea. Her passage was delayed by a foul wind. In the afternoon the *Medusa* was fallen in with, the commander of which communicated two reports; one from the captain of the *Kienchan*, the other from the Dutch consul-general, a passenger on board the Dutch corvette,—the last relating to an action with the *Medusa* herself in passing the Strait of Simonosaki.

The treatment of the little steamer *Kienchan* is worthy of notice. At five in the morning of the 8th of July this vessel anchored at the inner entrance of the strait, and was about to get under way, when a boat containing eight men and two officers, all Japanese, went alongside of her, and asked several questions of the Japanese pilot. "What was the name of the ship? where was she from?" These officers, not content with this, desired the vessel to leave, and the boat went over to the Simonosaki shore. A quarter of an hour after the *Kienchan* made sail, and stood out into the strait with her colours and pennant flying. At this moment two reports of cannon at a great distance were heard, and a small fort on the shore had been scarcely passed

when the guns of it were discharged. The shot struck the surface of the sea in her wake several times, and the captain concluded that they were at exercise, until shortly after a shot grazed near the mainmast of the *Kienchan*, and two other batteries on the shore nearer to her than the first in their turn opened a brisk and well-directed fire. Astonished at this, and attributing it to some motive of protecting the strait, the captain lowered a boat, and an officer with an interpreter of the legation were on the point of entering it to land and demand the reason for such proceeding when a shot struck her. Meanwhile two Japanese ships at anchor in the strait added their fire to those of the batteries. The fate of the *Kienchan* seemed to be decided. To return was impossible: in a narrow strait with a strong tide too much time would be necessary, so the captain adopted the only chance of escape left to him. Unshackling his cable he slipped the chain, leaving it with the anchor, and got under sail as soon as possible in spite of the fire of the batteries, which repeatedly struck the vessel. In passing the two ships he fired some shot into them, which seemed preparing to get under way, and then made for the outlet of the strait. Here two channels would enable him to get to sea; one, adopted by ships of a certain draught, led by the town of Simonosaki and the North shore on which the batteries were situated; the other, not of much depth, frequented by junks, led by the South coast of Kioussiou. Here there were abundance of forts, but hitherto they had been silent. The Japanese pilot, frightened by the shot, was incapable of giving any assistance, and the captain determined on taking the last of the two channels. The two ships had made sail and were fast gaining on the *Kienchan*, but luckily they would not venture to approach the shoal water, and twenty minutes afterwards the *Kienchan*, following her course under the fire of the two ships, was clear off at sea. Her hull above water had been frequently struck, but no one on board of her was hurt but by slight injuries from splinters.

On the following day the *Kienchan* fell in with the *Medusa* at the entrance of Nagasaki, and informed her commander of the brutal attack which he had escaped. The commander of the *Medusa*, M. Casembroot, had no intention of altering his route. The Dutch, those old and easy allies of the Japanese, to whom these owed what they knew of the art of modern warfare, was not allowed to pass with impunity under their guns. Notwithstanding, when the *Medusa* appeared on the morning of the 11th of July in the outer entrance of the strait, no preparations for battle had been made, and the town of Simonosaki was seen under the hills in the inner part of the strait. When she was not far off, with her colours flying, some guns were fired from a brig at anchor and from a battery; probably they were intended as signals. But every one remained at his post and the vessel stood on, while two ships anchored off Simonosaki hoisted the large white and blue flag of Prince Nagato at their main. The *Medusa* was then about three cables' length, when she fired a whole broadside into her, and at the same time a battery of eight guns on shore did likewise. Happily this fire was directed too high, passing over the bulwark. The batteries on the

Kiousiou remained silent, and the commander of the *Medusa* soon prepared his port guns and fired on his adversary, while the guns from the shore as well as his enemy were firing into her, committing some havoc. The narrowness of the strait compelled the *Medusa* to keep on her course, and another battery on shore opened its fire on her, consisting of 24-pounders, several of which fell on board, killing several of her crew. The battle now became very unequal, and the *Medusa* freshened her way, keeping up her fire from her port broadside; but as she increased her distance from the battery other discharges from earthworks met her, until at length, after engaging for an hour and a half in the strait the two ships and seven batteries, she effected her escape into the inner sea. She had four of her crew killed, and five of them wounded severely. Thirty-one shots had struck her hull, but happily her engine and machinery were safe and sound.

Such were the facts which we collected on board the Dutch corvette, and the result of the report was that the number of batteries on the North shore, the narrowness of the channel, and the rapidity of the current, rendered the strait very dangerous to pass Simonosaki: a single shot striking the machinery or the rudder might occasion the loss of a ship under the very guns of the enemy; and if the Prince of Boezen on the South, that of Kiousiou, had not remained an indifferent spectator of the action, no doubt the *Kienchan* and the *Medusa* would have been sunk.

On the following day, the sea having increased and the weather preventing any part of the land from being seen, our progress became slow and difficult, for it was necessary to keep well off shore. In the evening we made out the entrance of the Boungo Channel. In the course of the day the *Tancrede* had kept out to sea, but on the 19th we entered the channel preceded by the *Tancrede*, the squalls continuing and occasionally preventing us from seeing the two shores. The channel is wide but full of rocks, and the charts of it yet imperfect. After passing by some dangerous reefs we gained the interior sea, the wind aft, and found as we entered the channel increasing in breadth. While we were standing with our head to the N. W. all signs of land disappeared; but the sea was smooth in spite of the breeze, and we supposed that it was owing to some barrier behind us. Still there was an abundance of junks everywhere about us; and in the evening, after having doubled a promontory on the Kiousiou shore, we cast anchor off the entrance of the Strait of Simonosaki. High land extended to the North and West, forming an extensive vista from our anchorage. The day had been occupied in preparing for the operations of the morrow. The admiral had prepared a proclamation to the natives, informing them of the object of his visit. He had come, he said, not to injure the peaceable natives, but to take revenge for the insult offered by the prince to his flag.

(To be continued.)

THE NAUTILUS *and her Hydraulic Propelling Power.*

[In our number for May last we gave an account of an invention carried out in what was there termed "an hydraulic steamship." The application of hydraulic power to propelling vessels in place of paddle or screw, by the results of all the experiments yet made seems more than likely to displace all the present appliances of those powers; its advantages being steadiness as well as easiness of motion, and the cumbersome besides expensive nature of both those appliances *outside* of the vessel being entirely done away. Such enormous advantages, while a similar speed is maintained, seem to us to have been completely achieved, and must hereafter become general. We have received the following lines on the invention, to which we willingly give place; while the same process adopted in the *Waterwitch* is preparing for the Government.]

THE NAUTILUS.

A New Water Power.

The Nymphs and Naiads of the sea combined
To rectify the errors of mankind,
In those constructions that are seen afloat,
Propell'd by steam, and used in ship or boat.
For many years their nervous systems feel
The irksome pattering of the paddle-wheel;
They couldn't endure, or tolerate the screw,
Which would their watery element slip through
More easily; and Morgan's feathering plan,
Or those, in graduated steps, which ran,
To them were merely mechanician's aids,
Hateful alike as common paddle blades!

Resolved such plague no longer to endure,—
This water bruising, and its noise to cure;
They hold a meeting and themselves install'd,
Unto their council Dædalus they call'd:—
"Thou'rt an inventor, canst thou not produce
" (They say) some means adapted to man's use,
" By which his vessels may be made to glide
" Peacefully through the gentle, rippling tide;
" Without that thrashing of the aqueous slave
" That breaks the stillness of the slumb'ring wave?
" Go, Dædalus, exert th' inventive power
" Thou canst command, submiseive at the hour;
" And find for man some strong persuading force
" Which shall excel the power of the horse
" To boards applied; and your attention turn
" To water forces, whence he chance may learn
" Something to his advantage to pursue
" That's noiseless, easy, and efficient too;
" And will propel as well as boards or screw!"

To whom thus Dædalus replied :—“ My best
 “ And most untiring energies all rest
 “ At your command, most noble sisterhood !
 “ (Of rivers, lakes, and seas well understood) ;
 “ No longer shall those rude, old-fashion'd things
 “ Your peace disturb ; and since old Time has wings
 “ To lend, we'll see if we can't have a look,
 “ And take a leaf from out of his old book !”

Off on his errand flew th' industrious man ;—
 Consulted all the Argonautic clan,
 On lore hydraulic, hydrostatic laws ;
 And with Archimedes discern'd the cause
 Why water to its level rises, and the flaws
 That oft prevent it ; having cured them all,
 A water power found with rapid fall :
 With which his vessel gain'd the highest speed
 That screw, or paddle, ever yet achieved ;
 All outside paddles, and the screw besides,
 He does away, and flings *this* to the tides ;
 While *those* he uses, in hydraulic box,
 Secure and easy under patent locks ;
 By means of them, a stream of water glides
 Swift through his craft, ejected at her sides !

Enough, by simple means his ead he gains,
 The vessel's speed rewards him for his pains :
 His work approved, Dæd to the council hies,
 And takes the Nymphs completely by surprise :
 “ 'Tis done,” he said, “ paddles shall not molest
 “ The quiet stillness of your lawful nest ;
 “ No more shall those abominable waves
 “ Disturb the surface of your peaceful caves,
 “ Or send small boats unto untimely graves !”

While on his way the Nautilus he spies ;
 Pleased with her modest, graceful form he cries :—
 “ Since Nature's laws I have obey'd alone,
 “ The handsome *Nautilus* I'll make my own !
 “ For my invention her support I'll claim,
 “ For want of better, it shall have her name !”

Great was th' applause which through the council ran,
 As learned Dædalus explained his plan ;
 And soon those laws were pass'd which did provide
 That all the vessels which should henceforth glide
 On water surface of the Naiad's tide,
 Should with the *Nautilus* power be supplied.

Those Nymphs no more of aching heads complain ;
 And thus a new propelling power we gain.

LIFEBOAT OARS.

We republish this thoroughly practical and interesting article on Oars from the *Journal of the National Lifeboat Institution*. We are sure that our readers will join us in an expression of great satisfaction with the committee of that valuable institution for instituting so successful an inquiry on a subject of so much importance.

As a lifeboat has, in the majority of cases, to be propelled by oars, and as, in order to rescue a shipwrecked crew, she has generally to be rowed to windward against a heavy sea and strong wind, it follows that too much care cannot be taken to place in the hands of her crew the most efficient instrument for the performance of their laborious as well as hazardous work.

Thus, in a description of the Shields lifeboat in the edition of Campbell's *Lives of British Admirals*, published in 1817, vol. viii., the following passage occurs:—

“The oars she is equipped with are made of fir of the best quality, it having been found by experience that a rove ash oar which will dress clean and light, is too pliant among the breakers; and when made strong and heavy, from rowing double banked, the purchase being short, it sooner exhausts the rower; and this makes the fir oar, when made stiff, preferable.”

In consequence, however, of the frequent breaking of the oars in the lifeboats of the National Lifeboat Institution, the attention of the committee of management has been recently directed anew to the subject, and by their direction a number of oars, made of different descriptions of wood, have been tested to ascertain their respective qualities.

Although to obtain very accurate results, it would have been necessary to destroy a much larger number of oars, yet the table appended, showing the result of the trials, so far, may not be without interest. It will be seen that three properties are designated as of value,—viz. lightness, stiffness, and strength; and if all three were of equal value, there would be no difficulty in arriving at a decisive conclusion as to the fittest description of wood for a lifeboat's oars, after testing a sufficient number of each sort. The question is not, however, quite so simple, and must after all remain a matter of opinion to some extent, as the above-named properties have different values, and even all practical rowers may not agree as to the relative value of each. We will remark on the three above-stated properties in succession.

1. *Lightness*.—It is of the utmost importance that a lifeboat's oar should be as light as possible, consistent with strength; for, however well balanced an oar may be, a greater effort must be required to move a heavy than a light one, and in proportion the sooner will a person become fatigued in rowing with the one than with the other; and, as

a lifeboat man will frequently have to make many hundred, and sometimes several thousand strokes with his oar before his object is attained, three or four pounds extra weight, like the last pound on the camel's back, may cause him to break down altogether. Since, therefore, an oar being heavy or light may make the difference of a rower retaining his strength of arm or not, and hence of reaching a wrecked vessel or not, too much attention cannot be paid to secure the greatest possible lightness, in conjunction, of course, with adequate strength.

As the only suitable woods for the making of oars are different species of fir and ash, and as all fir woods are lighter than ash, it follows that, in this respect, fir oars are to be preferred for lifeboat service.

2. *Stiffness*.—A stiff oar is considered to be more manageable in a rough sea than a pliant one, although in smooth water many men prefer rowing with pliant oars, especially those who have been accustomed to them. It is commonly supposed that there is a loss of power in rowing with a pliant oar, a certain portion of the force applied being expended in bending the oar. Such, however, is only to a slight extent the case, as no force once exerted can be absolutely lost, and the oar itself, in its effort to recover its normal condition of straightness before being withdrawn from the water, will continue the force first imparted to it after it has ceased to be made, in the same manner that a spring-board, in recovering its straight direction, enables a person to jump to a higher altitude or further distance than he otherwise could; the oar, in fact, merely acting as a medium for applying the force in an unequal and more prolonged manner. A slight degree of pliancy in an oar is probably, therefore, not a disadvantage, although much pliancy would be.

3. *Strength*.—It will no doubt be supposed by most persons that an oar cannot be too strong, and that therefore great strength is the most important element in a lifeboat's oar. Up to a certain amount of strength, such is the case, and every oar in a lifeboat should be so strong that the most powerful man could not break it in rowing; but beyond that amount, independently of unnecessary strength involving greater weight, it becomes a question whether additional strength may not be a positive and possibly a serious disadvantage, even to the extent of endangering the safety of a boat.

The most frequent cause of the breaking of oars in a lifeboat is her being struck by a broadside surface, when the lee gunwale being forced under water, the men on that side cannot raise the blades of their oars sufficiently high to prevent their becoming immersed: in that case the pressure of the water on the blades, as the boat is being carried, broadside on, at the rate of several miles an hour before the sea, is so great that the oars are forced from the rowers' hands, and retained in a nearly upright position, with the blades several feet below the bottom of the boat. If the boat be in shallow water, they then come in contact with the ground and are instantly broken, whilst, if in deeper water, they generally are so; and if from their great strength they were not to

break, the strain on them is then often so great that they would wrench the thowl-pins out of their sockets, and break the gunwale of the boat; or, if the latter were too strong to give way, the risk of the boat upsetting would be much increased, as the pressure of the still water on the blades of the oars beneath the boat, and that of the crest of the sea on her upper side in the opposite direction, would powerfully tend to that effect.

In selecting the most suitable description of oar for a lifeboat, we have then to decide on a maximum of *desirable* strength, and on a limited flexibility or pliancy, and to select the lightest description of wood that possesses those properties.

An analysis of the table below shows that by far the strongest oars are those made of ash, but that they are also the heaviest; whilst if reduced in size to an equal weight with a fir oar, they would then be much more pliant, owing to the greater flexibility of ash wood.

Thus the lightest ash oar tested, of those made of uniform size, was 19 lbs., whilst a weight of $2\frac{3}{4}$ cwt. suspended at 1 foot from the end of the blade, equivalent to three times that amount or $8\frac{1}{4}$ cwt. of force, applied at the handle, caused no less than $5\frac{1}{2}$ feet of deflection without breaking the oar.

But the lightest fir oak, a Norway spar, of only $14\frac{1}{2}$ lbs., broke on the suspended weight amounting to 1 cwt. 3 qrs. 23 lbs., equivalent to a force of 5 cwt. 3 qrs. 13 lbs. at the handle, whilst its deflection at $1\frac{1}{2}$ cwt. on the blade, equal to $4\frac{1}{2}$ cwt. at the handle, was 1 foot 10 inches.

Now there can be no hesitation in pronouncing the latter of these oars to be preferable to the former. No rower could have broken it by his own strength, without exerting a force equal to more than $4\frac{1}{2}$ cwt., which is much more than he could do: its pliancy was not great, and with every motion of his arms, he would have had to move $3\frac{1}{2}$ lbs. less actual weight than with the lightest ash oar.

On the other hand, if, as for the reasons above stated we believe to be the case, there is a limit to desirable strength, the greater strength of this, the lightest ash oar would have been an actual disadvantage.

It might, however, have been reduced in size and weight, but its pliancy would thereby have been much increased.

It will be observed, by Table III., showing the average quantities, that twelve descriptions of oars were tested, two of them being of ash, American (United States) and Quebec, and that ten descriptions were of fir of various sorts. If from the latter we reject American pitch pine and larch, on account of their weight and too great pliancy, Baltic yellow batten for its pliancy, Quebec yellow batten for its weight, and Quebec white spar for its deficient strength, we have remaining, from which to select, Norway and Baltic white spars and battens, and the peculiar wood the Oregon or Vancouver's Island pine. This latter wood has not hitherto been used for oars, but has been solely, we believe, imported for the masts of yachts, for which

it seems to be peculiarly suited on account of its strength, cleanness, and freedom from knots, &c. A noble specimen of this wood, by far the longest and finest spar in Europe, will be familiar to those who are acquainted with the Royal Gardens at Kew, where it has been erected as a flagstaff, and towers high above the highest elms and other trees that surround it; its length being 159 feet, and its diameter only 19 inches at the base: the tree from which it was made having been 220 feet high.

Of these five selected descriptions of wood, the Norway and Baltic white spars and battens are so nearly equal in value, that it would be necessary to test a large number of each to distinguish any perceptible difference in the average of those brought into the market, and perhaps either one of them may be as good as the others, but various lots of each may vary in quality, some being better and some worse. The oars made from spars (entire young trees) have generally been considered the strongest, and of those now tested, the strongest of the spar oars were stronger than those of the same wood made from battens or planks, but they are rather more uncertain, being apt sometimes to break abruptly at the knots. The remaining wood, the Oregon pine, deserves special notice. It appears to be the strongest of all the descriptions of fir, and has the advantage of great uniformity of character, so that every oar may be depended on. It is free from knots, and breaks with a very long fracture. It varies in weight, according to the part of the tree from which it has been cut, the outside part of the tree being also heavier than the inner part. It is, however, much more expensive than any of the other kinds of wood, consequent on being brought from so long a distance.

Fir oars generally are said to deteriorate, as regards strength, from age; becoming, after many years, drier, lighter, and more brittle.

It was noticed, in Table I., that some of the oars tested were served with spun-yarn round that part of the loom which rests on the gunwale, that being the part where they most frequently break. It was thought that an oar might thereby be strengthened, but the effect appeared to be rather the reverse, and those oars generally broke with a short or abrupt fracture close outside the "serving."

The results of the testing so limited a number of oars, although attended with considerable expense, could only afford an approximate criterion as to their relative value. It is therefore proposed to supply a certain number of lifeboats with oars of different descriptions, including ash, to be submitted to the test of experience and hereafter reported on. Some boats have already been supplied with oars made from the Oregon pine, for trial.

Table I.—Trial of oars at Limehouse, February and March 1866. Length of each oar 13½ feet; Diameter at thickest part of loom 3½ inches; Width of blade 5½ inches. The Rest, representing the boat's gunwale, 3 feet 8½ inches from end of handle, and 2 feet 11 inches from end of loom. The weight suspended 1 foot from end of blade. The oars marked thus * were served round with spunyard in the wake of the gunwale.

Description of Wood.	Wt. of Oar.	Deflection.								Breaking Strain.	Length of Fracture		Position of Fracture from end of Handle.	Remarks.		
		At ½ cwt.		At 1 cwt.		At 1½ cwt.		At 2 cwt.			ft.	in.			ft.	in.
1 Oregon pine, timber	16	7	1	1½	1	7	2	4½	2	1	16	8	0	8	3	Strain across the grain of the wood.
2 Ditto, ditto	17½	5½	0	11½	1	6	2	1½	2	3	4	10	0	5	9		With the grain.
3 Ditto, ditto	18	7	1	1½	1	8½	2	4½	2	1	17	9	0	4	10	Across the grain.
4 Ditto, ditto	20½	6½	1	1	1	8	2	3½	2	3	21	9	4	6	8	With the grain.
5 Ditto, ditto	19	5	0	10	1	2½	1	8½	2	3	17	4	3	5	0	Ditto.
6 Norway spar, white	20	6	0	9	1	2	1	10½	2	1	21	1	6	5	4	
7 Ditto, ditto	15½	7½	1	4	..	..	..	..	1	1	27	0	6	3	9	
8* Ditto, ditto	14½	6½	1	1	1	10	..	..	1	3	23	Abrupt	4	3		Broke short at the serving.
9 Ditto, ditto	19½	3½	0	9½	1	4	2	7	2	1	11	6	6	7	0	
10 Norway batten, white	15½	6	1	0	1	9	..	..	1	3	26	4	0	4	0	
11 Ditto, ditto	17½	4½	0	10	1	3	1	11	2	1	0	4	0	3	11	
12 Ditto, ditto	16	5	0	10½	1	4½	..	..	1	3	22	2	4	4	9	
13 Ditto, ditto	16½	4½	0	10½	..	..	..	..	1	1	0	2	0	4	2	Broke at a knot.
14 Baltic (Swedish) spar, white	18	3½	0	8	1	1½	1	10	2	1	0	2	0	4	3	
15 Ditto, ditto	17	6½	1	1½	1	7½	..	..	1	3	24	Abrupt	3	10		
16 Ditto, batten, white	20½	6	1	0	2	1½	2	6	2	0	20	3	0	3	7	
17 Ditto, batten, yellow	20½	6½	1	0½	1	8	..	..	1	3	14	1	0	4	5	
18 Baltic (Petersburgh) batten, white	17½	6	1	0	1	7½	..	..	2	0	0	0	6	4	4	
19* Ditto, ditto	16½	5½	1	0	1	8	..	..	1	3	14	0	6	3	5	
20 Ditto, ditto	16½	4½	0	9½	1	1½	1	10½	2	1	25	Abrupt	3	8½		
21 Ditto, yellow	17½	8	1	5	2	5	..	..	1	3	7	2	0	5	4	
22* Ditto, ditto	17	8	1	3½	2	2½	..	..	1	3	0	Abrupt	5	9		
23 Quebec spar, white	15½	8	1	10	..	..	..	..	1	1	19	0	6	6	3	
24* Ditto, ditto	15½	6	1	5	..	..	..	..	1	1	10	Abrupt	3	5		
25 Quebec batten, yellow (red pine)	19½	4½	0	9½	1	3	1	11	2	2	7	Und. pt. crushd.	4	5		
26* Ditto, ditto	20	4½	0	9½	1	3	1	11	2	2	13	Ditto	6	2		
27 American pitch pine	20	9	1	4½	2	2½	..	..	1	3	7	4	0	5	3	
28 Laroh, batten (Scotch)	20	7	1	5	2	5	4	3½	Unbrokn.	..	..	..	..	..	..	At 2 cwt. 1 qr. 8 lb. deflection 5½ ft.
29* Ditto, ditto	18½	9	1	9	1	2	0	Abrupt	4	0		
30 Ditto (English)	21½	7	1	2	1	11	3	2	2	0	0	5	0	7	3	
31 Quebec Ash	23½	1½	0	7	1	0½	1	6	Unbrokn	..	..	..	..	..	..	Deflection at 4 cwt. 5½ feet.
32* Ditto, ditto	24	5½	0	11½	1	6½	2	3½	3	2	21	0	9	3	1	
33 American (States) ash red	20	6	0	11½	1	7	2	5	3	0	0	Sprung only.	Sprung only.	At 3 cwt. deflection 5½ feet.		
34 Ditto, ditto, white	19	7	1	2½	1	10	2	10	Unbrokn.	..	..	..	..	..	..	2½ cwt. deflec. 5½ ft.

Oars with Stouter Looms.

1 Oregon pine, timber, 4 inches diameter	19	6	1	0½	1	7½	2	6	2	1	0	5	0	6	0	
2 Admiralty pattern, 3½ inches diameter. Norway spar, white.	21½	3½	0	7½	0	11½	1	3	3	1	0	Abrupt	3	9		
3 Ditto, ditto, Swedish spar, white	21	2½	0	6	0	9½	1	1	2	2	11	1	6	8	6	
4 Norway spar, white, 4 inches diameter	24	3½	0	6	0	8½	1	0	2	2	0	0	9	3	11	

Table II.—Relative qualities of oars of uniform size, as shown by Table I.

Order of Weight.	Lbs.	Order of Deflection, at $\frac{1}{2}$ cwt at blade = $\frac{1}{4}$ cwt. at handle.	Inches.
1 Norway spar, white	14 $\frac{1}{2}$	Quebec ash	1 $\frac{1}{2}$
2 Quebec ditto, ditto	15 $\frac{1}{2}$	Baltic spar, white	3 $\frac{1}{2}$
3 Norway ditto, ditto	15 $\frac{1}{2}$	Norway ditto, ditto	3 $\frac{1}{2}$
4 Quebec, ditto, ditto	15 $\frac{1}{2}$	Norway batten, ditto	4 $\frac{1}{2}$
5 Norway batten, white	15 $\frac{1}{2}$	Baltic ditto, ditto	4 $\frac{1}{2}$
6 Oregon pine, timber	16	Quebec ditto, yellow	4 $\frac{1}{2}$
7 Norway batten, white	16	Quebec ditto, ditto	4 $\frac{1}{2}$
8 Ditto, ditto	16 $\frac{1}{2}$	Norway batten, white. . . .	4 $\frac{1}{2}$
9 Baltic spar, ditto	16 $\frac{1}{2}$	Oregon pine, timber	5
10 Baltic batten, ditto	16 $\frac{1}{2}$	Norway batten, white. . . .	5
11 Baltic spar ditto	17	Oregon pine	5 $\frac{1}{2}$
12 Baltic batten, yellow	17	Baltic batten, white	5 $\frac{1}{2}$
13 Oregon pine, timber	17 $\frac{1}{2}$	Quebec ash	5 $\frac{1}{2}$
14 Norway batten, white	17 $\frac{1}{2}$	Norway batten, white. . . .	6
15 Baltic ditto, yellow	17 $\frac{1}{2}$	Baltic batten, white	6
16 Baltic ditto, white	18 $\frac{1}{2}$	Baltic ditto, ditto	6
17 Oregon pine	18	Quebec spar, ditto	6
18 Norway batten, white	18	Norway ditto, ditto	6
19 Larch batten	18 $\frac{1}{2}$	American ash	6
20 Oregon pine	19	Oregon pine	6 $\frac{1}{2}$
21 American ash	19	Norway spar, white	6 $\frac{1}{2}$
22 Norway spar, white	19 $\frac{1}{2}$	Baltic ditto, ditto	6 $\frac{1}{2}$
23 Quebec batten, yellow	19 $\frac{1}{2}$	Baltic batten, yellow	6 $\frac{1}{2}$
24 Norway spar, white	20	Oregon pine, timber	7
25 Quebec batten, yellow	20	Ditto ditto	7
26 American pitch pine	20	Larch batten	7
27 Larch batten	20	Ditto ditto	7
28 American ash	20	American ash	7
29 Baltic batten, white	20 $\frac{1}{2}$	Norway spar, white	7 $\frac{1}{2}$
30 Oregon pine	20 $\frac{1}{2}$	Baltic batten, yellow	8
31 Baltic batten, yellow	20 $\frac{1}{2}$	Ditto ditto	8
32 Larch batten	21 $\frac{1}{2}$	Quebec spar, white	8
33 Quebec ash	23 $\frac{1}{2}$	American pitch pine	9
34 Quebec ditto	24	Larch batten	9

Table III.—Average qualities of each description of oars tested.

Order of Weight.	Lbs.	Order of Deflection at $\frac{1}{2}$ cwt.	Inches.
1 Quebec spar, white	15 $\frac{1}{2}$	Quebec ash	3 $\frac{1}{2}$
2 Norway batten, ditto	16 $\frac{1}{2}$	Quebec batten, yellow. . . .	4 $\frac{1}{2}$
3 Norway spar, ditto	17 $\frac{1}{2}$	Baltic spar, white	4 $\frac{1}{2}$
4 Baltic ditto, ditto	17 $\frac{1}{2}$	Norway batten, ditto	4 $\frac{1}{2}$
5 Baltic batten ditto	17 $\frac{1}{2}$	Baltic batten, ditto. . . .	5 $\frac{1}{2}$
6 Oregon pine, timber	18	Norway spar, white	5 $\frac{1}{2}$
7 Baltic batten, yellow. . . .	18 $\frac{1}{2}$	Oregon pine, timber	6 $\frac{1}{2}$
8 American ash	19 $\frac{1}{2}$	American ash	6 $\frac{1}{2}$
9 Quebec batten, yellow	19 $\frac{1}{2}$	Quebec spar, white. . . .	7
10 Larch batten	20	Baltic batten, yellow	7 $\frac{1}{2}$
11 American pitch pine, yellow	20	Larch batten	7 $\frac{1}{2}$
12 Quebec ash. . . .	23 $\frac{1}{2}$	American pitch pine	9

Table II. *continued.*

Order of Strength.	Cwt. qrs. lbs.	Remarks, &c.
1 Quebec ash	4 0 0	Unbroken at these weights, the great deflection having brought the weights to the ground.
2 American ash	3 0 0	
3 Larch	2 1 8	
4 Quebec ash	3 2 21	Strain in direction of the grain of the wood.
5 American ash	3 0 0	
6 Oregon pine, timber .	2 3 21	
7 Ditto, ditto	2 3 17	
8 Ditto, ditto	2 3 4	
9 Quebec batten, yellow.	2 2 15	Strain across the grain.
10 Ditto, ditto	2 2 7	
11 Baltic spar, white . .	2 1 25	
12 Norway spar, white . .	2 1 21	
13 Oregon pine, timber .	2 1 17	
14 Ditto, ditto	2 1 16	
15 Norway spar, white . .	2 1 11	
16 Baltic ditto, ditto . .	2 1 9	
17 Norway batten, ditto.	2 1 0	
18 Baltic ditto, ditto . .	2 0 20	
19 Ditto, ditto	2 0 0	
20 Larch batten	2 0 0	
21 Ditto, ditto	1 3 26	
22 Baltic spar, white . .	1 3 24	
23 Norway ditto	1 3 23	
24 Norway batten, ditto.	1 3 22	
25 Baltic ditto, ditto . .	1 3 14	
26 Baltic ditto, yellow . .	1 3 14	
27 Ditto, ditto	1 3 7	
28 American pitch pine .	1 3 7	
29 Baltic batten, yellow.	1 3 0	
30 Larch batten	1 2 0	
31 Norway spar, white . .	1 1 27	
32 Quebec spar, white . .	1 1 19	
33 Ditto, ditto	1 1 19	
34 Norway batten	1 1 0	

Table III. *continued.*

Order of Strength.	Cwt. qrs. lbs.	Remarks.
1 Quebec ash	3 3 10	
2 American ash	3 0 0	
3 Oregon pine	2 2 21	
4 Quebec batten, yellow.	2 2 11	
5 Baltic ditto, white . .	2 0 15	
6 Norway spar, ditto . .	2 0 6	
7 Baltic ditto, ditto . .	2 0 3	
8 Norway batten, ditto.	1 3 12	
9 Baltic ditto, yellow . .	1 3 10	
10 Larch ditto	1 3 9	
11 American pitch pine .	1 3 7	
12 Quebec spar, white . .	1 1 19	

THE ATLANTIC CABLE.

"There's the ship to lay the Atlantic cable." Thus spoke Mr. Brunel of the *Great Eastern*, to Mr. Cyrus Field, when the great engineer was building her; and the time now rapidly approaches when the big ship will make another effort to justify Mr. Brunel's opinion. In a little more than a week she will again be moving on her way to effect the grand scheme of electrically connecting England and America. The time has been stealing slowly but surely on since the attempt was made last year to lay the cable, but those to whom is entrusted the practical carrying out of the project have not been idle. They have been unremittingly engaged in devising improved methods for working the machinery and testing the cable. And now that arrangements are well nigh completed, and ere the expedition proceeds once more on its hopeful way, let us see what has been done towards remedying the incompleteness of things which became developed by last year's failure. First, with regard to the *Great Eastern* herself, it may be observed that sundry additions and alterations have been found necessary. These are hardly yet completed; in fact, there is some work yet to be done, which, however, will be finished before the big ship leaves the Medway. The principal item is the fitting up of the gigantic crinoline guard, which weighs about 17 tons, over the screw; the object of which is to prevent the cable while being paid out coming in contact with the propeller. Some improvements, suggested by the experience of last year, have also been made in the machinery of the *Great Eastern*; among other things, the paddle-wheels are being fitted with disconnecting gear. Everything is now completed aloft, new wire rigging replacing that which was found to be unsound, masts and rigging entirely painted down, and funnels repaired. The three tanks in which the cable is deposited have been repaired and painted, and are again watertight; while extra precautions have been taken in the way of additional supports to resist the enormous pressure during the possible rolling of the great ship in a beam sea.

The new cable differs from the old one in only two particulars. The conductor, it will be remembered, is composed of seven copper wires—six round one, each wire separately embedded in Chatterton's compound, and the whole surrounded by layers of gutta-percha, so as to form a core half an inch thick. This core is further protected by ten solid iron wires, each covered with five strands of Manilla yarn, the wires being laid spirally round the core. In the old cable the yarn was tarred; in the new it is left white, to decrease weight and facilitate the discovery of foreign substances, and the iron wires have been galvanised. The manufacture of this cable was completed last Friday, the total length being 1,660 knots. It weighs 38 cwt. per mile, which is almost double the weight of the original Atlantic cable. It is of course out of the question to compare the new cable with the one of 1857; but placed by the side of that of 1865, it will be found stronger, lighter, and more flexible. These qualities give it an immense aggre-

gate superiority, and enable it at any point to resist a strain of 8 tons. This year 2,730 miles of cable will be shipped, to complete both lines, the length put on board last year being 2,300 miles. The paying-out apparatus, which did its work so well last year, has been taken to pieces and considerably strengthened, especially with regard to the frames and drums. The old jockeys and brakes will again be used, but every precaution has been taken to prevent the possibility of mishap. It is in the picking-up apparatus, however, that the most important changes and additions have been made. And this was a paramount necessity; for to the wretched character of last year's arrangements is in all probability due the fact that the attempt to lay the cable proved a failure. But as the contingency of picking up the cable in mid ocean was not anticipated, it was not properly provided for, and it was the only contingency that was not. However, as Lord Carlisle observed at Valentia, on the departure of the first expedition, "Preliminary failure is the law and condition of ultimate success;" and so we are disposed to accept the failure of the picking-up apparatus in the past as a guarantee for its success in the future. That it ought not to fail again is the reflection which follows an inspection of the apparatus, which is widely different from the cranky arrangement of last year. Should hauling-in become necessary, it can now be done either from the head or stern of the *Great Eastern*. From the stern it will be effected by the paying-out machinery, the drums of which have been altered and strengthened, and reversing gear has been added; so, in fact, the machine can be used either for paying out or hauling in. The machinery for this purpose in the bow of the ship is entirely new: it has double drums, and is calculated to work up to a strain of 16 tons, and will not give way under a pressure of considerably more than 30 tons. It is specially constructed with a view to grappling for the old cable, and will be worked by a double cylinder trunk engine of 40-horse power nominal. The dynamometers for the picking-up as well as for the paying-out machinery will be fitted with adjusting weights, and will have larger scales attached, so that more delicate observations will be attainable this year than it was possible to take last summer.

It will be remembered that last year, after the broken cable had been grappled, it was more than once lost by the imperfection of the forging of the swivels. The heads of the swivel bolts were pulled through the eyes, as wire is drawn through a die, and so part of the grappling rope came up without the prize. This year the swivel bolts have been forged with special care. There is no fear of any such accident this time; and, indeed, there is little danger of any accident at all, or at least of any irreparable accident. The grappling ropes, which have been manufactured at Greenwich, are about 20 miles in length: the rope is $7\frac{1}{2}$ inches in circumference, and is made of the same strands as the cable, the wire being of steel running through the Manilla. There will be, also, five miles of buoy ropes for temporary use. The grappling irons will be similar to those of last year, but heavier. Three kinds will be used,—grapnels simple; grapnels in

which the cables when caught will be jammed; and grapnels provided with a sharp edge, on which the weight of the cable will cut itself when needful. As we have received several letters questioning the possibility of recovering the lost cable, the buoys having disappeared, we may mention that there is no doubt of Capt. Anderson being able to place the *Great Eastern* as near as possible over the spot at which the lost end of the cable lies, notwithstanding that the buoys which were left to mark the locality are swept away. The bearings were accurately taken at the time the cable parted, and it is highly probable that Capt. Anderson will begin to grapple within a quarter of a mile of the spot which will be selected on the chart for the purpose. With regard to the buoys themselves, which were only intended to serve a temporary purpose, the last thing heard of them was from the master of a French vessel, who reported having met them in the neighbourhood of Madeira. The process of testing the cable for insulation and continuity while it is being submerged has been improved upon by Mr. Willoughby Smith, whose invention we described in our issue for the 6th of April last. The object Mr. Smith has in view is to enable the electrician in charge of the cable to keep up a constant test for insulation and continuity of the conductor, and at the same time to have free communication through the cable. Thus, during the laying of the new cable, with this system, the proceedings on board the ship during each hour from the time she leaves Valentia until she arrives at Newfoundland will be known to those in charge of the cable at the Valentia end. The fact of free communication being possible at any moment, should anything occur to interfere with the insulation of the cable, must prove of great importance in facilitating the localisation of the fault, and so preventing unnecessary delay. The speed of transmission through the cable known to be within the compass of electrical skill is also likely before long to be further increased, as experiments are now being conducted with a view to accelerate the rate at which messages pass. This improvement is due to Capt. Bolton, R.E., who has invented a new telegraphic code, by which double the number of messages now able to be sent may be transmitted through the cable.

The staff generally will consist of Capt. Anderson, who, we believe, will again be assisted by Capt. Moriarty and Mr. Moodie. Mr. Beckwith will again take charge of the ship's engines; and while Mr. De Sauty has been replaced by Mr. Willoughby Smith as electrician, Mr. Canning and Mr. Clifford will be once more in charge of the all-important task of laying the cable.

The cable fleet will comprise, besides the *Great Eastern*, the *Medway*, a steamer of 1900 tons, belonging to the company, and which will convey about 400 miles of the cable on board. The tanks for the stowage of this quantity of cable have been fitted on board that vessel, and by the time the *Great Eastern* is ready to take her departure everything will be in readiness on board the *Medway*. The paddle-wheel steamer *Terrible* will again accompany the *Great Eastern*; but it appears that the Admiralty have intimated that a second vessel of war cannot be spared this year. The screw steamer *Albany*, a vessel

of 1500 tons, will accompany the expedition, to render assistance and to carry stores and supplies; besides which, the screw steamer *William Cory*, of 1500 tons, is also being fitted to proceed to sea with the other vessels. But although Government cannot spare another vessel this year, the five ships at the time the splice is made at Valentia will present a sufficiently imposing appearance. The *William Cory* may not accompany the expedition all the way, but the other four vessels engaged are so very efficient, that they will doubtless prove equal to all that will be required of them.

It now only remains to indicate the manner in which it is proposed to carry out operations: the programme will be followed as closely as circumstances will permit. The *Great Eastern*, with the new cable and the remainder of the old one on board, will run out to sea on the 30th instant; the 28th, being the day of the highest spring tides, was originally chosen; but while the 30th gives a margin of two days more for possible delays, the water on the bar at Sheerness will on that day be quite enough to float the big ship, however deep she may be, especially as she will coal comfortably from the 3rd or 4th of July till the 7th or 8th, in Bantry Bay. From Berehaven the *Great Eastern* will go to Valentia, not later than the 10th of July, and by that time the new shore end will be laid from the *William Cory*, and be ready at a buoy not far from the spot where the splice was made last year. When the ends of the new cable are joined, the *Great Eastern*, with her consorts, will take her departure for Trinity Bay, Newfoundland, on a course distant about thirty miles from that which she took last year, so that there may be no chance of laying the new cable over the old one. Assuming the laying of the new cable to be successfully accomplished and telegraphic communication established, the big ship will then steam back to the middle of the Atlantic, and attempt to pick up the cable lost overboard in July last. The 1200 miles of cable now lying on the bed of the Atlantic are to be connected with the 1100 miles left on board; and, if all goes well, the ship is to retrace her course to Trinity Bay, and so complete a double line of union between the two continents. Leaving a margin of a few days for minor accidents on these voyages, it is hoped that all will be accomplished, and the *Great Eastern* be home again, about the 17th of September. It is sincerely to be hoped, and there are ample grounds for the hope, that the present year will witness the consummation of this the greatest work of civilised man. It may be remembered that "Forward!" was the last word transmitted through the old telegraph from Europe to America, and "Forward!" still remains the motto of the enterprise. Should the anticipated success attend the present expedition, in the words of the Queen's message through the cable of 1856 to President Buchanan, "the electric cable will prove an additional link between the two nations, whose friendship is founded upon their common interest and reciprocal esteem."—*Mechanics' Magazine, June 22nd.*

Nautical Notices.

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

PARTICULARS OF LIGHTS RECENTLY ESTABLISHED.

(Continued from page 325.)

All bearings are magnetic.

Name.	Place.	Position.	F. or R.	Ht. in Feet.	Dist. in Mils.	[Remarks, &c. Bearings Magnetic.]
26. Oporto Down, Portugal	North side of Entrance	.....	Fl.	170	15	Est. 8th May, 1866. Flash every minute.
Cape Priorno Spain	Perrol	.....	Fl.	..	..	Discontinued during June and July. To be relighted 1st August
27. Lanzarot. Isle Canaries SW	Pechiguera Point	28° 50' 9" N., 18° 52' 9" W.	F.	51	19	Est. 25th July, 1866.
Port Naos	Lanzarote, East side	.....	F.	47	7	Est. 15th August, 1866. Red harbour light. (a.)
Panels Reef	River Plata	Near Monte Video	F.	17	5	Est. 16th March, 1866. Vessel a cable N. N. W. ¼ W. of reef.
28. San Cristobal Point, Spain	Off Villanueva	41° 14' N. 1° 44' 7" E.	F.	40	9	Est. 1st August, 1866.
29. Port Adelaide	S. Australia	Semaphore Jetty	R.	27	..	(b.)
Wonga Shoal	Bell Buoy	.....	..	..	..	Established. (c.)
Port Willunga	Red brig off	Snapper Pt.	..	..	..	(d.)
30. Wreck of the <i>European</i> s.	.....	.....	..	..	..	See p. 228 of June number.
31. Lowestoft Lt. One Fathom Bank	Bristol Channel	.....	R.	38	..	Removal of lower light. (e.)
32. Point Rossa, Italy	.....	41° 40' 8" N., 16° 2' 7" E.	Fl.	253	18	Est. 1st October, 1866. Further notice to be given.
Venice	.....	.....	..	..	..	Est. 1st June, 1866.
33. Shoals in the Java Sea	Western Part	.....	..	..	..	Entrance by night. (f.)
						(g.)

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

(a.) 27.—The lights in line lead through the S.E. entrance to Port Naos, but the channel is narrow, and should not be taken by a stranger without a pilot.

(b.) 29.—This red light on the Semaphore jetty, Port Adelaide, is now elevated 27 feet above high water, and is visible from seaward, when bearing from N. ¼ W. round by East to S.E. by S., at a distance of 6 miles.

The light is obscured eastward of the latter bearing, in order to keep vessels a mile westward of the sands, at the outer bar of Port Adelaide creek; as it is in contemplation to remove the light vessel, after the erection of a lighthouse on the South sand head of the Outer bar, of which due notice will be given.

(c.) 29.—The Wonga, a sandy shoal, extends in a N.W. direction from the Sand hills southward of the Semaphore. A bell buoy painted red, and shaped like a boat—with a staff and ball—has been placed in 17 feet at low water, on its northern extreme—off the end of the jetty—and may be seen during day 2½ miles off. From the buoy the water shoals gradually in a S.E. direction to the shore.

The buoy should be left to the southward and eastward, but small vessels may cross the shoal southward of the buoy in 12 feet water, by bringing the Semaphore jetty light to bear E. by S. ¼ S., and anchor according to draft of water off the end of the jetty. Large vessels should avoid crossing the shoal

southward of the buoy, by bringing the jetty light to bear S.E.b.E. $\frac{1}{2}$ E., and not stand further in than to have the lightvessel bearing N. $\frac{1}{4}$ W.

The best anchorage for large vessels is anywhere northward of the Bell buoy, with the lightship bearing from North to N.E., in 4 or 5 fathoms at low water. Vessels waiting for orders will find it convenient to anchor tolerably close to the buoy; whilst those only waiting for tide to pass the bar, should anchor with the jetty light bearing S.E., and the lightvessel from N.N.E. to N.E. Small vessels may anchor inside the Bell buoy with the lightvessel bearing from North to N.b.W. $\frac{1}{4}$ W., and the jetty light from E.b.S. to E.S.E.

It is high water at full and change, at the Outer bar of Port Adelaide, at 4h. 30m.; and the rise is about 8 feet. Tidal signals are shown from the Semaphore flagstaff on the hill, but strangers are required to take a pilot. The signal for a steam-tug is the ensign at the fore. A signalman is stationed on the hill above the inner end of the jetty, to attend to vessels' signals.

(d.) 29.—A red buoy has been placed in 10 $\frac{1}{2}$ fathoms water, near the edge of reef stretching westward from Snapper point, the southern horn of Willunga bay; the buoy should be left to the southward.

Variation 5° 30' East in 1866.

(e.) 31.—On or about the 1st day of October 1866, the *low* light at Lowestoft will be removed from its present position, to the new lighthouse on the point of Lowestoftness.

The light will be exhibited at an elevation of 40 feet above high water, and will show *red* to seaward, and *green* through the roads, both to the northward and southward.

The new lighthouse bears S.S.E. $\frac{1}{2}$ E., distant nearly half a mile from the high lighthouse, and E.b.N. $\frac{1}{4}$ N., rather more than a quarter of a mile from the present low lighthouse.

(f.) 32.—From motives of defence it has been decreed,—until further notice,—that no vessel or boat, can enter or leave the port of Venice during night, by the Malamocco channel, or that of the Chioggia. Vessels may enter or leave by the above passages from sunrise to sunset, keeping in the channel indicated by buoys placed on either side.

(g.) 33.—Commander Bullock, of H.M. steam vessel *Serpent*, reports that the Dolphin, Antelope, Jason, Banterer, and Anna Paulowna shoals, in the track of vessels from Sunda Strait and Batavia to Singapore, were searched for by him without success.

The positions of the Lynn bank and the Coventry reef, both of which dry at low water, and on which the sea always breaks, have been accurately determined. Those of several other dangers in the locality have also been rectified by him in the chart.

ROCK OFF TRANQUE ISLAND,—Corcovado Gulf, South America, West Coast.

The Minister of Marine at Madrid has given notice, that on the 1st of March, 1866, a rock was discovered by the Spanish frigates *Numancia* and *Blanca*, off Centinela Point, the East extreme of Tranque Island, Corcovado Gulf.

The urgent nature of the duty on which these vessels were employed did not permit a close examination of this danger; but it appeared to be a black rock, about 20 yards in extent, and the sea broke gently, so that it could be plainly seen. From bearings taken two miles from the rock, and when it was in line with Centinela Point bearing S.W. $\frac{1}{4}$ W., its position is considered to be in lat. 42° 58' S., long. 73° 18' 16" W.

All bearings are magnetic. Variation 19° 55' East in 1866.

**ROCK OFF KAWAU ISLAND,—Hauraki Gulf, New Zealand,
North Island.**

A rock having 9 feet of water on it at low springs, with 5 to 10 fathoms close to, has recently been discovered—by the British ship *Nelson* striking on it—in the passage between the Flat Rock and Kawau Island.

It lies four cables from the shore of Kawau, with the S.E. point of that island bearing S.b.W. $\frac{3}{4}$ W., Flat Rock E. $\frac{1}{4}$ S., Tiritiri Lighthouse S.b.E. $\frac{1}{4}$ E., and Takatau Point N.W.b.N.

All bearings are magnetic. Variation at Kawau Island $14^{\circ} 28'$ East in 1866.

Middle Island, Chalky Inlet.

A pinnacle rock, with 5 feet on it at low water, and 5 to 9 fathoms close around it, has also been found a cable's length southward of the rock marked on the chart off the South point of Great Island.

THE "MIANTONOMOH."

An American monitor is now floating in British waters, and the successful sea-voyage of one of these craft has become an accomplished fact. This fact was accomplished on Saturday evening, the 16th of June, by the arrival of the *Miantonomoh* in Queenstown Harbour in company with the *Augusta* and the *Ashuelot*, both paddle steamers of 10 guns. The appearance presented by the "illustrious stranger" with her long hull, which is destitute of spars and rigging, is somewhat singular, resembling nothing so much as a dredging machine with sundry modifications. Although our readers generally are doubtless familiar with the build of this class of vessel, a few details of this—the first to accomplish a long sea-voyage—may not prove unacceptable. This extraordinary vessel measures 268 feet in length by 59 feet in width, and is of 1500 tons burthen. Her deck, which is without bulwarks, is at a level of about 3 feet 6 inches above the water, and out of it rise her two turrets, between which are two funnels, one for smoke and the other for ventilation. Between the turrets passes a platform or bridge, on which the nautical duties are performed when at sea. Above the turrets are shot-proof wheel houses of iron, in which the captain, pilot and helmsman are protected when the ship is in action, so far differing most essentially from the turrets now being introduced into our navy. The surface of the deck is flat, and is 12 inches thick, exclusive of the beams. It consists of three layers of wood and iron alternately, the lower layer being 6 inches of timber, above which are 3 inches of iron, and over all 3 inches more timber. The combings of the hatchways are of stout iron, 2 feet high, with weather boards of nearly 1 foot. When the craft is out of harbour the hatchways are battened down watertight, and the sea washes over

the deck without discomfort to those on board, as communication is maintained between the platform and the lower part of the ship through the turrets. The general shape of the hull may be described as being that of an oblong box, lined away at both bow and stern, more sharply at the former than at the latter, the vessel's bottom being as flat as her deck and sides. In addition to her central keel, she has at each angle below a sort of keel or bilge-log, which takes the thrust of the stays that help to support the turrets.

The *Miantonomoh*, although an armoured vessel, is timber-built. The lower part of her framing, which is copper sheathed, is 3 feet thick, and is continued upwards of this thickness to within about 4 feet of the water-line. Thence it is carried up to the deck of a thickness of 7 feet, and is protected by 7-inch plating. A heavy timber moulding intervenes to prevent the junction of the iron and copper, but it is stated that this has not proved sufficient to prevent galvanic action setting in. The turrets are about 8 feet high by 23 feet internal diameter, and are built up of iron 11 inches thick. Each turret mounts two Dahlgren guns, the combined weight of gun and carriage being 42,000 lbs. The guns are smooth-bore, throwing spherical shot of 480 lbs. or 15-inch shells of about 360 lbs., with bursting charges of 16 lbs. of powder. The ordinary charge for round shot is 35 lbs., and this can be increased up to 60 lbs. The turrets are pierced with one port for each gun, which is covered by an iron curtain during the time of loading. The motive power of the vessel consists of four engines, which drive twin screws. These screws are of brass and four-bladed, 12 feet in diameter and of a graduated pitch, with a mean of 18. Her maximum speed is stated to be nine knots an hour, but in her voyage from America here she did not make more than seven knots on the average. She was, however, driven at slow speeds to economise fuel, as at full speed her consumption of coal would be about forty tons in twenty-four hours; and it is said she had not sufficient on board to allow of this expenditure. We presume this to mean that she could not carry sufficient coal for full speed for so long a voyage. Ventilation is effected very perfectly by means of the shaft already alluded to, through which, when at sea, six donkey engines draw air, which they distribute throughout the ship. Only two of these engines are now at work while in harbour, and the atmosphere is kept cool even with a crowd of visitors on board. Notwithstanding her peculiar construction, it by no means appears that the *Miantonomoh* is not a fairly comfortable ship for sailors.

The *Miantonomoh* is one of the most recently built American monitors, her construction having only been completed in the latter part of last year. The main object of her present voyage is to test her sea-going qualities, and the results so far have proved highly satisfactory. Her officers consider it a perfect success; and taking the broad fact as it stands, we do not see how the conclusion is to be avoided. She has come hither from New York, having called on the way at Halifax and at St. John's, Newfoundland, making the voyage from the last port in ten days and ten hours. It will be said that the

time of year chosen for the run is favourable—granted; but when crossing the Bay of Fundy the *Miantonomoh* encountered weather which, without amounting to a gale, was very boisterous. This she is reported to have ridden easily through, and in this circumstance we have an earnest of what she would do in worse weather. On the voyage to Queenstown the indicator marked no greater rolling than 7° , while the average is stated to have been 2° . On the other hand, her paddle-wheel consorts, the *Augusta* and *Ashuelot*, are said to have rolled to a maximum of 18° and 24° respectively. On the whole, her speed was at least respectable; whilst, if her peculiar build be taken into consideration, we may even call it surprising. Taking, then, the general circumstances of the case, we cannot consider this first voyage of a monitor otherwise than satisfactory, and as exhibiting the triumph of engineering skill as applied to naval construction. At the same time this successful visit must be suggestive to our Admiralty of dangers we are little prepared to face. The Federals have much larger classes of monitors; and if the *Miantonomoh*, which only represents one of the smaller, has been able to cross the Atlantic, is it not obvious that a squadron of powerful monitors can at any moment visit our shores? This monitor is on her way to Cronstadt, where she will meet with a flotilla of ships constructed much on the same principle. It follows that a junction of an American and a Russian fleet might eventually be made in our waters; and consequently, since it is given to no one to foretell events, it is the duty of Government ever to be prepared for the worst.—*Mechanics' Magazine*.

THE VISIT OF THE FRENCH FLEET 300 YEARS AGO.

A lecture has been delivered at the Green-row Rooms, by the Rev. N. Howard MacGachen, on "The Visit of the French Fleet to Portsmouth 300 years ago." There was a large attendance, and the lecture, which was of a very interesting character, was in aid of the fund for procuring prizes for St. Thomas's Sunday-school children. The rev. gentleman, having called attention to the fact that the French fleet had visited this port more than once—sometimes in peace, and sometimes during war—referred to the leading features of the visit of last year, complimenting the town and the chief magistrate for that year on the manner in which our allies were received. He then described the state of the army and navy of England 300 years ago. There was then no standing army, the whole military force consisting of militia; and it was not till the time of Charles the Second that a standing army was organised. The Life Guards, the Blues, the 1st Royals, and the 3rd Buffs were the first regiments, and these were followed by a corps called the "Admiral's regiment," which formed the nucleus of the royal marines. At that time, too, they virtually had no navy. Five ports on the south coast were bound to provide a certain number of men and ships. Soon after this a small fleet was established—small

both in the number of ships and men; for it consisted of only fifteen sail, large and small, and a complement of twenty men was considered sufficient to arm one of these men-of-war. As a rule, too, the men in command were unworthy of their position. Interest was sufficient to obtain command of a ship; and it was sometimes held that a man who had sailed from London Bridge to Richmond was entitled to the command of a first-class ship of war.

Having made these general observations, the lecturer proceeded to describe the appearance of Portsmouth at that period, accompanying that description by references to several admirably executed maps, one of which was a copy of a map in the state papers at the British Museum. A historian had described Portsmouth as "bare and little occupied in time of peace, with much bare ground within the walls." In King Street, St. Thomas's Street, St. Nicholas' Street, &c., there were fields and hedge-rows; in fact, the streets could scarcely be called anything more than tracks between fields. It was curious to remark on one of the maps the names of the occupiers of houses over the doors, and some names of the present day were to be observed among these, showing that their ancestors must have lived in Portsmouth 300 years ago. When the royal navy was established, Portsmouth began to rise in importance. It was first garrisoned in the reign of Henry the Seventh, and at that time it was protected by a round tower and a chain across the mouth of the harbour, which was drawn up by a capstan on the approach of a foreign ship. *Portsea* was not then in existence; and there was no doubt that the Gosport of that period was the present Alverstoke,—a few fishermen's houses only standing where Gosport now did. The French fleet arrived off Portsmouth on the 16th of July, 1545.

The French galleys were very dexterously managed, and fourteen English ships set out to meet them, the admiral's vessel being a vessel of only 500 tons burthen. The rev. gentleman then described the loss of the *Mary Rose*, with a vice-admiral and 700 men on board—a calamity which was witnessed from the shore by the King and Lady Carew—remarking that the loss appeared to be attributable to the insubordination of the crew, although the French galleys claimed the credit of having sunk the ship. Twenty years ago a Portsmouth waterman was fishing in the neighbourhood of the disaster, when his lines caught in something. The Government sent down a diver, and a number of remains, which had been sunk 300 years, were recovered. The lecturer exhibited some of the shots, a piece of the barrel of a gun, &c., so recovered. The French burned Bembridge, in the Isle of Wight; but after a very warm reception from the St. Helen's men, they retired, and were ultimately driven to the French shores, the English fleet returning to England with a loss of only fourteen men. Contrasting those times with the present, the lecturer said that then sixty men garrisoned the town; now, 20,000 men would be required. The tonnage of a first-class ship of war was only 1500 tons; that of the *Warrior* of the present day was 6000. The length of the former was 100 feet; that of the latter, 380 feet. The former carried twenty-

two guns, of comparatively small size; the latter carried forty, of the 68 and 100-pounder size. The former vessel cost £1200; the latter, nearly £500,000. The navy then consisted of only 16 sail; now it consisted of 548 steamers and sailing vessels.

In conclusion, the rev. gentleman contrasted the warlike and friendly visits of the French, and expressed a hope that the two nations might long remain in union and peace; for combined they might dictate peace to the world, but at war they might embroil every nation on the earth.—*Hants Telegraph*.

ROYAL NATIONAL LIFEBOAT INSTITUTION.

On the 7th of June, a meeting of this institution was held at its house, John Street, Adelphi; T. Chapman, Esq., F.R.S., in the chair.

The minutes of the previous meeting having been read, rewards amounting to £68 were granted to the crews of several of the lifeboats of the institution and those of shore boats for saving fifty-six lives during the past two months from different wrecks on our coasts. Rewards amounting to £74 were also given for valuable services rendered during the same period by the crews of other lifeboats of the institution. The silver medal of the institution and £2 were voted to Mr. Francis Haydon, mason, and £4 to his boat's crew, for putting off during a very heavy gale of wind, and rescuing at considerable risk of life eight of the crew of the Swedish brig *Fahli Bure*, of Sundswall, which was wrecked off Sandown, Isle of Wight, on the night of the 24th of March last. Dr. Porter, of Godshill, Isle of Wight, was thanked by the institution for restoring, according to its rules, an apparently dead child from drowning. Payments amounting to upwards of £5000 had been made by the institution during the past two months on various lifeboat establishments.

During the past month the institution had sent new lifeboats to Runswick, Wexford, and St. Ives. Public demonstrations had been made at Sheffield and Leicester on the occasion of the lifeboats being formally presented on the part of the inhabitants of those towns to the institution. It was stated that the Freemasons, the Odd Fellows, and the towns of Wolverhampton and Burton-on-Trent were collecting the cost of lifeboats for the institution. The City of Dublin was also collecting the cost of a lifeboat. A legacy of £50 had been left to the institution by the late Mr. George Scott, of Warburton, Oxford.

Reports were read from the Inspector and Assistant Inspector of Lifeboats on their recent visits to various lifeboat stations under the management of the institution. A communication was read from the Dutch Shipwreck Society, requesting that a lifeboat and transporting carriage might be constructed for that society by Messrs. Forrest and Son, the builders of the institution. The Commissioners of her Ma-

jesty's Customs had ordered 600 copies of the new edition of the pamphlet of the institution on the management of open boats in heavy surfs, for circulation amongst their officers at the various ports of the United Kingdom. The proceedings then terminated.

New Books.

NAVIGATION, *with Great Circle Sailing*. London: Longmans. 1866.

This little pocket volume, forming one of Gleig's School Series, is by the master of Charles Schools, Plymouth, in itself a sufficient recommendation; but we may briefly say that he has accomplished all he has stated in his preface, and within a range of about a hundred minikin pages compressed the great problems (and these are not a few) of navigation and its principal mysteries. We commend it to our nautical friends, who, for the trifling price of one shilling, may initiate themselves into the difficulties of the art, and may meet with familiar explanations on points which may have given them trouble, without any other assistance than that which they will find in its pages.

NOTES ON HEALTH *in Calcutta and British Ships*. By W. H. Pearse, M.D. London: Churchill and Sons.

Such a work as this, which is the production of an officer entrusted with the superintendence of the Government Emigration Service, needs only to be known to find its welcome on board the numerous ships running between this country and the East. The important subjects of ventilation, diet, and health are here dealt with; and the treatment of disease on its earliest appearance on board our emigrant ships are points on which information is much needed. Such assistance as is here afforded should not be neglected, when it can be had for the trifling sum of a shilling or two.

CHARTS AND BOOKS PUBLISHED BY THE HYDROGRAPHIC OFFICE, ADMIRALTY, in June, 1866.—Sold by the Agent, J. D. Potter, 31, Poultry, and 11, King Street, Tower Hill, London.

1,609.—Ionian Sea, Roadstead of Santa Maura and Port Dupano, with view, Captain Mansell, R.N., 1864, (1s. 6d.)

2,482.—United States, Fletchers Neck to Cape Cod, 1858, (2s. 6d.)

1,097.—United States, Cay Biscoyne to Lower Matcumbe, 1863, (2s. 6d.)

2,640.—Java Sea, Western part, corrected by Commander C. Bullock, R.N., 1865, (2s. 6d.)

Sailing Directions, 2nd edition, Crete or Candia Island, Captain T. B. Spratt, R.N., C.B., F.R.S., 1866, (1s.)

Sailing Directions, Hindostan Pilot, West Coast, Gulf of Manar, and Maldivh and Lakadivh Islands, Commander Taylor, I.N., 1866, (6s.)

EDWARD DUNSTERVILLE, *Commander, R.N.*

Admiralty, Hydrographic Office, 18th June, 1866.

TO CORRESPONDENTS.

W. C. P. We are obliged to defer the paper for our next.

THE
NAUTICAL MAGAZINE

AND

Naval Chronicle.

AUGUST, 1866.

MAGNETIC VARIATION:—Disagreement of Chart and Compass.

Dear Sir,—Nothing during the last twenty years has created such an interest and excitement amongst seamen as the compass with all its apparent erratic movements, and comparatively unknown laws by which it is governed. Nor has the interest been confined to seamen, since the subject has been taken up by the ablest scientific men in the kingdom, and, unfortunately, they do not agree as to the best method of making the best practical use of it.

It is, therefore, with much diffidence I approach the subject, and I do so solely with the hope of inducing some able writer to give an exposition of his views,—on the variation of the compass in the southern parts of the South Atlantic and Indian Oceans, considered with reference to the apparent or real discrepancies existing between that found on board ship and as shown on the Admiralty chart of Magnetic Curves, compiled by F. I. Evans, Esq. (1858). Such an exposition I, in common with many sailors, would rejoice to see in the *Nautical* at some early date; and I would more particularly point to Captain Shadwell, R.N., as being most able to enlighten us.

I allude to that distinguished officer because these remarks have been called forth by studying his “Table of the Variation of the Compass, ascertained on board H.M.S. *Sphinx* during the year 1850” (see *Nautical Magazine*, 1851, p. 632). Now, although a number of years has elapsed since that table was published, still the subject has ever been present to my mind, and it has been from an undefined wish or expectation of seeing something in the *Nautical* from year to year,

coupled with a dread of "rushing into print" when we feel rather incapable of handling the matter with advantage to others, that has deterred me from writing about it. However, after some years' attention to the variation in those latitudes, made during successive voyages to China, and the results *all* tending in the same direction as Captain Shadwell's table, I have at last ventured to say a few words with your editorial sanction.

If we turn to the above table and select the variation from about May 8th July 15th, and compare it with that shown by the chart in question, we are quite unprepared for such a startling difference as exists between them, in some cases amounting to as much as 18°. Now this of itself is matter for reflection, and yet might be passed over, were it not for the significant note at the bottom of the page,— "These observations have in all cases been corrected for the local deviation of the compass.—C. D. A. S."

Writing anonymously, I may without impropriety state that I (in common with the majority of seamen in the mercantile marine) am prepared to acknowledge Captain Shadwell as one of the first of our navigators, theoretical and practical, and from whom we have received much benefit. And as a logical inference, I accept that table as it stands without comment (unless he shows reasons to the contrary) in preference to the chart above mentioned, although by authority, and compiled by such an able scientific officer as Mr. Evans.

I confess the subject is sufficiently perplexing without going into detail; and yet the question will suggest itself,—Why have those observations and many others little if at all inferior not been incorporated with those used in the construction of the chart? At the same time I may state that I am not in a position to know whether or not such may have been the case,—only the inference is obvious,—if they were made use of, then there must have been an incongruous medley to produce such a mean. In whichever way we view the question it is none the less perplexing, and becomes more so when we consider that the talented compiler of the chart was a former colleague of Captain Shadwell, and perhaps, therefore, better able than any man living to assign the proper value to that table.

If, as I apprehend, the observations for that part of the chart comprised between Cape Horn and New Zealand were obtained principally from Sir James Clark Ross, Lieutenant Moore, R.N., and Lieutenant Clark, R.A., it becomes interesting to know by what process of criticism their observations have been selected to the exclusion of all others; for although those officers may have been appointed from their especial knowledge of magnetism in its details, still it will be conceded that the highly scientific officer *may* not be the best observer, and as the variation within those limits must have been obtained principally at sea, it may be presumed that all observations made in her Majesty's ships would be of equal value with those last named.

I might also ask,—What has become of the mass of observations made by merchant ships provided with Board of Trade compasses which have been returned to the meteorological department, and which

I am led to believe will show a result at variance with the chart in question?

I have already said, my own observations tended in the same direction as Captain Shadwell's table,—showing a decided *increase of westerly variation* in the southern parts of the South Atlantic and Indian Oceans, as compared with the Admiralty chart, and most probably the like increase has been noticed by the majority of commanders sailing in those latitudes.

It is but fair to state generally upon what grounds I arrive at this conclusion.

I have been in my present ship (wood built) eight years, trading directly to and from China. Standard compass, Board of Trade, with a probable limit of error of 15', due to incorrect centring, placed 5 feet above poop deck, 18 feet before the mizen mast, 16 feet from the nearest davits, and 29 feet from the nearest (400 gallon) tanks in the hold. Outward cargoes general, usually including a small portion of nail rod iron. I think such a position will compare favourably with a man-of-war, in which there is usually a large number of tank, not to mention her guns, shot, &c. I also venture to say the observations have been taken with some degree of care. Ship swung in China with and without cargo. And the result is an increase of about 4° generally between longitudes 30° West and 80° East, and latitudes 38° to 48° South. I say this advisedly, and after some years of observation; but as the subject is somewhat difficult and abstruse, I shall neither be surprised nor mortified if I am shown to be wrong in my conclusions.

Perhaps it will be argued, that it is a matter of little moment to navigators whether or not the variation is correctly given, since we find the whole correction at once due to the particular compass used, which embraces both variation and local deviation; and as far as the navigation of the ship is concerned, this may be so far true. However, I believe most men who give any attention to the matter are not content with this, but have a laudable desire to separate the local deviation and hence the condition (magnetically) of the ship at all times and places. Consequently the variation will be required, and if incorrect, of course the deviation must be. Now that we have such excellent aids as Towson's and Burdwood's tables, Saxby's spherograph, &c., it becomes a positive pleasure, a most interesting and instructive study, and notwithstanding all that has been written on the subject by not a few able men, the science is yet in its infancy.

We may only take the compensation and non-compensation theories as an instance to see how scientific men differ. Mr. Towson is strongly in favour of compensation; and yet, if I understand him rightly, I think it can be shown he is somewhat inconsistent; for if we turn to his appendix E, in his *Practical Information on the Deviation of the Compass, &c.*, he says:—"If, therefore, we could succeed in insulating the needle from the magnetism of the ship, we should by the same means intercept the magnetism of the earth. and thus the compass would be rendered absolutely useless."

Now with all due respect for the talented author, I would submit the question,—What is compensation? if it is not an endeavour to *insulate* the needle from the magnetism of the ship. It is *practically* a difference of degree only, not of kind. You are *surrounding the needle with an influence to overcome* the ship's magnetism, to all intents and purposes an insulation. I confess I cannot arrive at any other explanation. and if we follow his own logical result, "it is an absurdity." However, I would not go so far as that, since he has shown that a compensated compass may be most serviceable in coasting vessels, and especially steamers sailing on or near the same magnetic latitude, since they are nearly always upright, and but little affected by the heeling error, which is, in my humble opinion, the most difficult to overcome, and at its maximum in a compensated compass.

In the present state of the science I think the majority of sailors will corroborate me when I say that the uncompensated compass is the safest and easiest to manage during a long voyage, and that we also "take to it more kindly," and succeed in acquiring a better knowledge of the subject than if it were compensated.

Recurring to the purport of these few remarks, which I may repeat is to show that the variation is increasing, or, rather, to bring the "mare's nest" prominently before us, because the fact must be known to thousands, and an earnest desire to see it properly handled by some one competent to do so; for I hope I have shown a discrepancy exists; and to have it explained will confer a benefit on the mercantile marine and in particular on

Your obedient servant,

QUOD VERUM TUTUM.

To the Editor of the Nautical Magazine.

[The subject of discussion by our correspondent (who shows himself a close observer of such matters) is one of considerable importance,—inasmuch that if the reckoning of the ship is found to agree with the ship's compass, according to the variation found by it, the question naturally arises,—of what use is the variation chart? and the straightforward answer to that would be, of course, *that it is to mislead the ship*,—however unintentional that may be. Still, that must be the effect, and one of no small degree when the difference amounts sometimes to as much as a whole point! Our correspondent has indeed started a very *startling* question, and we naturally turn to cases where ships have run upon small islands in their way in Southern latitudes, although we do not know whether their variation used has been that of the chart or from their own observations. We shall be very glad to contribute our assistance in this journal to satisfy the very reasonable wishes of our correspondent in reference to solving his question. Meanwhile we council our readers to trust to their own observations with their own compasses, (which observations if they are what they should be must always keep them right,) and to consider the chart as an approximation, but not for entire dependance. *All appliances in*

the way of corrections by magnets, we have always looked on with distrust: we have shown cases where such things have been thrown overboard, and we advise those whom it may concern, to lose no opportunity of finding the error of their compass by celestial observation, when out of sight of land, combining as it would the two distracting elements of variation and deviation, whether using the spherograph or Burdwood's invaluable tables. When in sight of land, the bearings of headlands, lighthouses, and objects in line with each present so many opportunities that no discreet seaman would neglect them.—ED.]

REMARKS ON LYING TO IN A STORM.

Sir,—In continuation of a short paper in your June number, I will offer some remarks upon what appears to affect a vessel's safety when lying to in a *hard gale*, with a heavy sea, and if the views here given have any practical value, it will be seen that the great length of the present style of ships renders them less safe than the old wooden full beamed vessel.

There are also other risks incurred in building ships after the present models, as your instructive and interesting contributor, Mercator, has pointed out in a paper of great practical value, in the June number of your Magazine; and I can adduce one risk from my own experience of these long vessels, namely, that of their straining so much as to *give way in the middle*.

To what then is the safety of a vessel due when hove to in very heavy weather, when the gale is so hard and the sea so high that forging ahead is out of the question? The answer is, her buoyancy and her *drift wake*. And I lay special stress upon the latter, because I think it is not enough taken into account.

The current notion among seamen is, that when a ship is lying to, her bow should be kept to the sea, because that part is the strongest to stand the shock of the waves; while it does not always occur to them that this is only a part of the problem of safety, and that its complement may be seen stretching away in turbulent eddies from that bow, and acting like oil on the stormy waters, and breaking the force of the advancing waves.

In a very hard gale, and it is such a one here considered, the *line of drift* is in the direction of the lee quarter, when the drift wake is seen stretching from the weather bow, and meeting the crystal seas, reduces the thunder of their force to a safe roar, so that an impending danger is dissipated, as it nears the storm torn ship, and ends in angry foam and flying spray.

Supposing plenty of sea room, I should say the more a vessel drifts

when hove to in a high sea, the less chance is there of her decks being swept, or of a greater disaster.

In the year 1860 I was on a passage to Bengal in the *Pioneer*, a long, low, shallow vessel, and after passing the islands of St. Paul and Amsterdam, was overtaken by a gale from the N.W., with the highest sea I have known. During this gale the vessel drifted more than a hundred miles, in the manner described above, with her helm lashed a-lee, and I attribute her outliving the gale to her so drifting.

I was led on this occasion to especially consider the necessity there is for watching what storm canvas will suit a particular vessel, when hove to; for had the canvas at first tried on the *Pioneer* not been altered, she would have gone down, having fallen off broadside to the waves and shipped two seas. After the second sea broke aboard, I knew she would not outlive the night unless she could be kept with her bows to the sea, and this was done by taking in a close reefed fore trysail, and putting a tarpauling in the mizen rigging, leaving the close reefed main trysail, with which she weathered out the storm.

I have never seen a grander and more awful sea, and for the first time in my nautical life I fully realized the truth of a description often used as merely a figure of speech,—“Mountainous waves;” for as each sea thundered on and lifted itself on high, it looked the size of a mountain, with its head hid in mist and spray; while sometimes the storm driven sea birds might be seen swept over the foaming crest, and then swoop down the becalmed side of the advancing wave to get a brief shelter and rest of wing.

In the time of full beamed wooden ships, before the present iron age, the common balance in use when hove to was a close reefed main topsail, with a fore topmast staysail; and I think I am right in saying that a kind of superstition existed among seamen about the latter sail, that a ship was not safe when it was not set. In the ships of the present day, this balance for storm sails is often found not to answer, an account of a tendency to fall off broadside to the sea, which for a ship of great length is more dangerous than for one of the older model, and I have a conviction that many a ship has gone down at sea with a close reefed main topsail and fore topmast staysail, which would have weathered the storm with the former sail only.

When a ship, hove to, falls off beam to sea, it is not merely that her entire length is exposed to the danger of being drenched, but the line of drift being now changed from the lee quarter to the lee beam, there is the resistance to drifting of the whole immersed length of the vessel, instead of the oblique section as before. And the consequence is, that her rate of drifting is so reduced, unless lightly laden, that there is no active drift made to windward to check the force of the seas as they come towering on.

No rule can be laid down about storm sails when lying to; but I am of opinion that a frequent error is that of canvas before the foremast, when probably a tarpaulin in the main or mizen rigging would

enable the vessel to make better weather. And I will conclude this paper with the remark, that I think no ship ought to go to sea without a *storm main topsail*, the side of a close reefed sail, and always ready for bending, when a hard gale or hurricane is certainly coming on.

I venture to hope that seamen will consider what is here only indicated, worthy of their attention, and that they will accept the assurance that among the important nautical problems they are at times called upon to solve, not one of the least is that of the careful and skilful use of canvas when lying to in a hard storm with a high sea.

W.C.P.

To the Editor of the Nautical Magazine.

REMINISCENCES OF JAPAN,—*The late Operations of the Combined Fleets.*

(Continued from page 371.)

On the 20th, by six in the morning, we were under sail, the *Tancrede* following us. The admiral, from the reports of the *Kienchan* and *Meduse*, had determined on not following our track. As we stood out to the middle of the channel the details of the land on each side of us were lost to view,—even the junks which had entered the strait successively, disappeared behind the point of Kiou Siou. Beyond this point about three miles is situated the town of Simono-saki.

Two guns fired from midway up the hills to the northward, and which were scarcely heard by us, appeared to be the signal of the Japanese that our vessel was approaching. On that side we observed a castle, situated in the midst of a wood, the residence of Choofoo, one of the princes of the Nagato family. This castle, from its position, could never command the approach to the strait, and the admiral, leaving it to the right, gave directions merely to fire on it in passing, keeping as close as possible to the opposite shore. At about half past six a battery was suddenly unmasked on the North shore. Five guns in it were easily counted at about five or six cables' distance. At the same moment the frigate grounded, the rapidity of the current preventing us from manœuvring to avoid it; but it was very slight, and detained her not above twenty minutes, and we dropped our anchor a little further on.

The utmost stillness prevailed along the Japanese shore, but in the fort they were very busy. To the left of it was a rice field, which separated it from the neighbouring hills. At the foot of these hills were two small villages, and a little above them a grand building, standing on a terrace, all constructed with masonry. This was pointed out to us by the pilots on board as the seat of a feudal lord. We could perceive the Japanese soldiers running between it and the two villages,

and appearing in large numbers on the parapets. We could see officers galloping towards Simonosaki. On the same side also we perceived a road which followed the winding of the shore, and made out nine distinct works, and at some distance was the point of Kiou Siou, which concealed from our view the first houses of Simonosaki. We also distinguished with our glasses a body of men repairing a battery, and officers, apparently from their dress, superintending the operations.

As soon as we had anchored, arrangements were made for mooring.

The Japanese, who might have seriously annoyed us in this operation, did not alter the direction of their guns, which as yet remained quite silent. It is not easy to account for this, for the Japanese were at their guns. Possibly they could not fire on the frigate without endangering one of their villages in the direction in which she lay. But at 7h. a.m. the *Semiramis* opened a steady fire on the battery, the parapets of it flying away in dust towards the village where the soldiers had been seen, and on the white terraced building above mentioned. The Japanese now took refuge in the wood, and directing our fire on the route to Simonosaki, the same result followed. In fact, the Japanese did not return the fire but very slowly from the battery and neighbouring points.

Towards 9h. a.m. the shore appeared to be abandoned, and the *Tancrede*, which had enfiladed the battery, was ordered to proceed into the pass, with a view to reconnoitre the works further off. She made sail passing by us. The next moment, as she came in the line of fire of the battery, a well directed fire was opened on her by it. The *Tancrede* stopped her steam, and returned the fire from her four guns, while the frigate scoured the enemy's battery, which had not fired a dozen shots when it was deserted by its men. At the same time the *Tancrede* took up a position rather further removed: she anchored nearer to us without being in our way, and her commander came on board the *Semiramis*. He reported, that he had found four other batteries on the Simonosaki side, all ready to open their fire in turn. As to the *Tancrede*, four shots had taken effect on her, one penetrating just above water, two others striking the mizen mast, and the other the jigger mast. We found from experience that our fire, well directed as it was, did not prevent the Japanese from renewing theirs as soon as they had a piece ready. The admiral therefore determined that the troops should land and attack the battery, destroy it, and occupy the town and castle, and thus do the enemy as much mischief as possible. Therefore, while the men were getting their dinners, a moderate fire was kept up on their works.

A curious incident now occurred on the opposite shore. We were anchored off the little town of Tanoura, belonging to Prince Bouzen, like all the rest of the strait. From the commencement of the action a crowd of persons had assembled on the beach, and a number of junks were lying off the landing places leading to the pagodas in the mountains. About an hour after we had anchored, M. Girard, who is well versed in Japanese, a missionary, and the interpreter from the French legation, accompanied by an escort, were directed to land and

find the authorities of Tanoura, and present them with the admiral's proclamation. They landed amidst a populace who betrayed no kind of ill feeling: this crowd, without showing any other feeling than curiosity, seemed to assist at the action as spectators, discussing the effect and merit of either side. Our messengers, conducted to the presence of the *obounio* or mayor of the place, were graciously received by this functionary. He made them take the seat of honour, and listened to their statement; in fact, receiving the proclamation from their hands, he dispatched it while they were seated to Prince Bouzen by a special messenger.

At noon, the boats were manned and armed, and took in the marines under Lieutenant de V. Mist, and the African chasseurs under Captain Côte, making 150 men under the command of Captain de V. Le C. de Quilio. The Commander Layrle accompanied the troops. The boats landed at the foot of the hills which extend to the right and command the rear of the battery. Some howitzers were fired by the boats to clear the brushwood, and the party landed and formed without the enemy being aware of their presence. And thus the most difficult part of the proceedings was effected without obstacle. The chasseurs soon occupied the hills, while the marines proceeded along the strand in two sections to the left to attack the battery, and soon after three small columns disappeared in the woods ready to fire on the enemy. This was a critical moment, for we knew nothing of his force; but very soon a move took place in the battery. Our marines were there, waving their hats on the parapet. The chasseurs had scoured the hill and disappeared on the opposite side, while the marines spiked the guns and prepared them for burning. While this work of destruction was going on, detachments were traversing the rice fields to the left, and entering the village and the terraced building. The Japanese were flying before our troops, and concealing themselves in the valley, not daring to show themselves, and keeping up a faint return of musketry. Speedily now a thick smoke arose, the precursor of fire, from several parts of the village.

The *Tancrede*, which had anchored further out in the strait, apprized us in about an hour that troops were rapidly making their way along the shore from Simonosaki towards us, and we were not long in perceiving the glitter of their lances or muskets, and the troops appeared to form a considerable body, extending beyond a mile, concealed occasionally, and appearing but partially in their long extent. The route by which they were approaching was bordered with houses, and appeared to be a good road by the sea side. The *Tancrede* and the *Semiramis* commanded it with their guns, and the Japanese were seen rapidly becoming disorganised, and retreating or retiring into the woods; but the head of the column reached the mamelon above mentioned, and commenced engaging our troops. But by this time they came under the fire of our vessels, and suddenly stopped, forming a barrier across the road, and sheltering themselves behind it, keeping up a fire of musketry on the boats from which we had landed. These replied with their howitzers.

At two in the afternoon some more musketry was heard in the valley. While our men were rallied at the battery, the whole of the guns were kept in constant fire, and the two villages were burning in the midst of a mass of smoke. Half an hour afterwards, when the troops were embarking in the boats, the large building with the white terraces was blown up, sending a huge mass of fragments into the air. At three our men regained their ship, and Commander de Quilio made his report, and each of the officers gave his own view of the business, all of which may be told in a few words. Having landed, the three columns had met in the wood small groups of Japanese infantry, who fled after discharging their muskets: a certain number falling from balls and bayonets. While the chasseurs scoured the little hill and descended its opposite side, the seamen had gained the battery which they found deserted. The five guns in it were all of bronze, 24-pounders, with their carriages complete, with the sweep for training. One of them had been dismounted by our shot. These had crossed a low parapet taking effect on the battery, which was scattered with mangled remains, clothes, &c., strewed about. As soon as we were in possession; the commanding officer ordered the carriages to be destroyed, and the guns to be spiked, and the ammunition in the magazine to be thrown into the sea. A detachment crossed the rice field, towards the village and the skirts of the woods. The Japanese, without any resistance, disposed themselves about the valley, firing from the shelter of the trees. Our fire had been directed to different parts of the village to which the Japanese soldiers had retreated. Some of the houses contained stands of arms. In one house was found a European book of military tactics translated into Japanese. One of these, printed in Dutch character, was lying open at the page at which the reader had suddenly left it. And this page treated of ships attacking a battery at the time that she had to contend with a strong current. The detachment of seamen penetrated as far as the white terraced house, a part of which was occupied by officers, and the rest of it a great magazine of projectiles. The fire had commenced at one of the angles, and very soon the whole had disappeared with a tremendous explosion. At this moment the signal being made to retreat, our men reembarked in good order, slowly, without being followed by the enemy.

This brilliant success had only cost us one man slightly and another mortally wounded. The Japanese had left a small number killed on the ground; but the fire of the ships' guns, directed with much precision on the battery, had occasioned very considerable loss. It is said to have amounted to 150 officers and soldiers. In considering the circumstances of the action, it must be concluded that the Japanese were surprised by our unexpected attack, for the detachments left to guard the shore had taken to retreat on the first fire. As to the reinforcement of the militia of Simonosaki, our shot had compelled them to make a sudden retreat into the woods. Our men had gained some curious trophies: sabres, lances, fowling pieces, match-muskets of an ancient date of Dutch manufacture, armour, which principally excited

our interest, as it recalled that used in ancient times, the helmet, cuirass, armlets, and greeves, &c., were found. In fact, this armour was of a very durable metal, sometimes doubled and lacquered, but would hardly resist bullets; the fastenings of it were silk. Some of the suits, no doubt those of officers, were completely covered with gold ornaments of the most beautiful colour. This warlike method of the Japanese had been for centuries in use among them, especially by the Mikado's officers, who had usurped the executive power in Japan under the name of Tycoons, and was used in their internal warfare. But the introduction of the modern art of war has convinced them of their uselessness, and yet without renouncing this finery in warfare, they have adopted for their troops, armed in the European fashion, a dress of a lighter kind, and one more adapted for their readiness of action. The Prince of Nagato's soldiers, who fell under our shot, were nearly all dressed like those of the Tycoon.

While thick columns of smoke kept rising from the valley, the news of our success was carried to Simonosaki, and the Prince of Nagato learned that the insult committed on our flag had been resented, and our operations now enabled our ships to approach Simonosaki and to reduce that place to ashes, without our suffering from their batteries; there was also before us the castle of Choosoo, which had given signs of hostilities, and which a few shot were sufficient to destroy. But what good was it to us without being obliged, and against the terms of the treaty just agreed on, to destroy the country, and to visit the peaceful peasantry with punishment for their master's crime? It was therefore decided we should return, and shortly before dark we made sail for an anchorage outside the entrance.

We returned to Yokohama by the interior sea, and on the afternoon of the 21st, after crossing the western part of this sea, we entered the strait which communicates between Nipon, Sikok, and the neighbouring islands, and the sea of Osaka. Nothing could equal the beautiful picture which lasted until night as we beheld it from the bridge of the steamer. The passage we were following, sometimes contracted by promontories, sometimes widened by considerable bays, as we were carried along by a tolerable current, at every moment presented to us a new and charming view. Hills crowned with verdure extending to the sea, numerous villages, pagodas and castles seated on the heights, hundreds of fishing craft busy around us, the horizon embellished with the peaks and summits of graceful mountains, formed the materials of the picture to which the beams of an evening sun lent all its splendour. The night came, unwelcome night while our eyes were not yet satiated with the view, and we sought to trace out still these graceful objects of nature. We dropped our anchor a little beyond a bay, at the bottom of which we could indistinctly perceive the walls and high towers of the castle of Mihara. On the following morning we entered the sea of Osaka by the strait which separates the isle of Nipon from Awasisima, and two days afterwards in the morning we were at anchor off Yokohama, the *Tancrede* joining us soon after.

We were not singular in revenging the perfidious deeds of hostility

of which the strait of Simonosaki had been the scene. The American corvette *Wyoming* set out also, as is well known, on the same mission by the interior sea, and a few days before our arrival had taken signal revenge for an outrageous act on the *Pembroke*. The *Wyoming*, a fast sailing ship, drawing but little water, had only some small guns, but two large 110-pounders. When at the inner entrance of the strait, she passed through it as quickly as possible without heeding the fire of two or three batteries successively directed at her. The crew were lying on the deck, and their shot did little or no harm, and soon she got near the ships of Prince Nagato at anchor off Simonosaki, and gave them her starboard broadside. A shot of the 110-pounder, directed at the *Lancefield*, then full of men, her crew ready for work, struck her, and no doubt her boiler also, for they were seen jumping overboard before the steamers. A minute afterwards, as the batteries were unmasked in the second part of the strait, the commander of the *Wyoming* turned his vessel round to retrace his steps. Unfortunately she grounded in this manœuvre, on account of the narrowness of the strait, and became fixed under the cross fire of several batteries. In a few minutes the side exposed to the shore was full of shot, and twelve men were wounded, and six of them mortally. At length, having succeeded in getting off, the *Wyoming* retraced her course, giving a second broadside to the Japanese ships in passing them, one of which she sank, and passing the batteries again without replying to them, she soon regained the interior sea, and a few days after returned to Yokohama to repair damages.

From the 8th to 20th July four actions had taken place in this part. The strait remained closed, for the Prince of Nagato, in spite of the destruction of a part of his fleet and his batteries, soon got up fresh obstacles. But France and America had avenged the honour of their flags, and if the question was not to be considered as settled, at all events these vigorous proceedings would give the proud daimies something to reflect on. But the attitude of Japan at this moment was rather curious as well as the way in which the Japanese government looked at these events. For the Japanese people they were matter of curiosity, in which they had nothing to do but to look on without taking any part: and the fear of the yacoines even was sufficient to command their entire restraint. The governors of Yokohama went on board the *Semiramis* to ask for the details of the proceedings, and congratulated the admiral on the success, which they said was favourable to the Tycoon. The authorities of Nagasaki said the same to our consul; but notwithstanding the result of the affairs of Simonosaki, the gorodjo was unwilling to stop in its course of disregarding the treaties in force.

On the 24th of July, in answering the complaint of M. Bellecourt to Yedo on the aggression of the *Kienchan*, they expressed their astonishment that one of their princes had dared to attack a French ship, and promised to look seriously into the subject. They added nevertheless, "We repeat, you said in your letter, you have declared that our government is not in a condition to command the obedience of our

princes. Such a state of things does not really exist, and this assertion can have no other foundation than a misconception of the conferences."

Midst these evasive answers and dilatory way of treating our representations, the representatives of the different powers concerted the immediate adoption of a common line of conduct to be pursued. On the 25th of July the ministers and *chargés d'affaires* of France, England, the United States, and Holland agreed in conference, that it was indispensable, in consequence of the Japanese gradually disregarding the treaties, to proceed with their united forces at Japan to effect the reopening of the interior sea to their merchant shipping; the government of Yedo would be informed of this decision, and would see the necessity of determining without delay to satisfy the demands of these powers before they proceeded to extremities by military operations. The several commanders-in-chief being called on to express their opinions, considered that nothing less than prompt action was necessary. The navigation of the inner sea not being mentioned in the treaties, it was by them thought proper first to demand the due execution of the clauses stipulated. Great Britain having to demand formal satisfaction from Prince Satzuma, Admiral Kuper determined to visit him with a division of his ships while Admiral Juarez remained at Yokohama to take care of the town; the governor of Yedo would be apprised of this determination of the ministers, the consequences that would follow from it would now appear.

On the 6th of August, 1863, Vice-Admiral Kuper sailed from Yokohama with the screw frigate *Euryalus*, the corvettes *Perseus*, *Pearl*, and *Argus*, the *Coquette*, *Rocchorse*, and *Havoc* gunboats, in all seven vessels and 89 guns. On board the *Euryalus* Colonel Neal had embarked, the British *chargé d'affaires* with his suite. The division on leaving the bay of Yedo steered for Van Diemen Strait, to the North of which lay Kagosima, the place where the most beautiful porcelain of Japan is made. The population of this city is considered as 180,000, and belongs to the Prince of Satzuma. Every one on board the ships considered the voyage as a mere cruise, and the appearance alone of the guns of the ships would bring the arrogant daimio to terms. On the 11th of August the admiral arrived at noon at the mouth of the bay, and in the evening anchored off the Seven Islands. On the following morning at seven the small vessels were engaged in sounding.

Kagosima is seated at the bottom of a bay on the western shore, opposite the large mountainous island of Sakoura-sima, between which and the main island is a channel two or three miles long and variable breadth. There are some islets and reefs at the entrance of the channel, and two by which ships may enter it from the sea. The English ships took that which led by the city. The two sides of the channel seemed to be covered with batteries, of which the city itself appeared to have the most, and a camp was seen to occupy the heights. The guns were surrounded by numerous troops using their fans and following with their eyes the progress of the ships, and appeared ready to

open fire on them at the first signal. About seven or eight miles away in the bottom of the gulf near a point on which there were no batteries, lay three steamers belonging to Prince Satsuma. Notwithstanding this threatening preparation, Admiral Kuper anchored his ships off the city, at about five cables' length from the nearest batteries. The great depth of water in the bay rendered it difficult to find good anchorage, which might be taken by the Japanese to indicate a desire on the part of the English to come to a friendly solution of difficulties.

While the masters of the ships were occupied in sounding the bay, several Japanese officials went on board the *Euryalus*, to ask the object of their visit. Their manner showed a certain dignified disdain very different from that generally adopted by the officers of the Tycoon. Being immediately informed that the mission represented the claim of England, these officers stated that the daimio was in his castle of Kirisimi, about nine miles from Kagosima, and receiving the summons of Colonel Neal, promised an answer within twenty-four hours. The letter of the British minister reminded Prince Satsuma of the circumstances of the attack committed by the suite of Shimadzo-Sibouro on the tokaido, and the forbearance of the English authorities on that occasion. It was by the order of the English government that the present demand was made on the daimio. The letter also stated that the government of the Tycoon had given the required satisfaction, but as the Prince Satsuma was declared by it to be beyond its control, the English minister had resolved to demand direct from the prince the judgment of the murderers of Mr. Richardson, and the indemnity of twenty-five thousand pounds for his family. In conclusion, Colonel Neal stated that the commander-in-chief of the military forces had orders, in case of a refusal, to resort to the exercise of his power.

On the following morning there were evident preparations in the city for warlike operations: a large number of troops were collected in the batteries; the guns were reckoned from 60 to 80, pointing on the ships; five large junks of Loo Choo that lay in the line of fire were removed outside the line of the forts. From time to time the admiral's ship was visited by Japanese officers, stating that the reply to the letter was coming, and inviting the English officers on shore to a conference. This offer was formally refused: moreover, seeing the preparations of the Japanese, Admiral Kuper found that it would be impossible, in case of extremities, to do much at the anchorage the ships had taken up and to reply effectually to the batteries, and gave directions for his ships to trip their anchors and get under steam and sail.

The time for the reply had passed several hours, when an officer of high rank, bearing a letter from the prince, arrived on board the *Euryalus*; he demanded that his suite, consisting of forty armed men, should be received on board the *Euryalus*. This demand was conceded, when a similar party of marines were ready on deck to receive them. The officer was introduced to Colonel Neal. The Japanese officer said that there was error in the terms of the answer, which it was necessary to rectify. The officer then took the letter and returned with it without further remark.

This strange conduct was evidently nothing more than a ruse to keep the ships in the position which they occupied; but the admiral most prudently ordered the ships to get under way. The ships stood towards the head of the bay, but still could find no convenient anchorage, on account of the depth. The *Euryalus* and *Perseus* took up an anchorage off the town at twice the distance of their former position, while the other ships stopped in the bay of Sakoura-sima, beyond the fire of the batteries.

At nine in the evening the messenger from the Prince of Satsuma again arrived, with a definite answer, and enclosed it to Colonel Neal, attributing the incident of the morning to a mistake. The letter, signed by the daimio's prime minister, commenced thus—"He who has killed ought to be killed. Such is justice, for nothing is more sacred than human life. * * *" It then went on to say that in virtue of this law, observed in Japan as elsewhere, the prince always intended to judge and punish the assassins; but it had not been in his power up to that time to find them. To do so required time, and when it was done the English minister would be informed thereof and the place of execution. Other passages, couched in somewhat sarcastic terms, justified in some degree the assassins on the Tokaido.

"The governors of the provinces of Japan are subordinate to that of Yedo, of which you are not ignorant: We know that we have negotiated a treaty which assigns the limits to which foreigners may frequent; but you do not know that there is a stipulation by which these same strangers may prevent free intercourse. Suppose a similar case was to happen in your country, and that it was your custom, as it is ours, not to travel without a large retinue, would you not be the first to punish (that is to say, to throw out of your way by chastising) him who broke the laws of your country? If we judge by parallel cases very soon the princes would not be able to travel.

"We agree with you that the death of a man is a grave subject; but the neglect of the government of Yedo, which has not inserted in the treaty any of the ancient laws of our country, only showed its own incapacity.

"Judge then yourselves who is to blame. He who neglects the laws, or he who desires to maintain them? Settle this important question, which a great officer of the government of Yedo is come to discuss with yours; tell us which is right, and after that the question of indemnity shall be settled. In all cases our government acts according to orders from Yedo. Such is the frank and cordial answer which we make to the dispatch which you have addressed to us."

The tenor of this letter set aside all hopes of a speedy pacific solution of the affair at issue. The patience of Colonel Neal, which had been full often put to the proof, was yet to be tried. About nine on the following morning two Japanese officers appeared, demanding an acknowledgment of the receipt of their prince's letter. They insisted on the solution which he had recommended to the English. The Tycoon, they said, had signified to Shimadzo-Sibouro that the daimio Satsuma had no right to any direct communication with the English.

That prince had no right in reality either to agree to or to refuse what the English required.

Diplomacy could no longer keep up the illusion, and thus left the field open entirely to action. Although the weather had become very bad, the admiral made his preparations, and the five vessels anchored off Sakoura-sima took possession of the prince's three steamers. They had been purchased by the prince, and were known in the Chinese seas as the *Contest*, the *England*, and the *Sir George Grey*, and had cost him about 305,000 dollars. These ships, guarded by a small number of men, were taken without resistance, and their crews disposed of in the island; they were then taken to an anchorage and the division returned to the bay. Rainy showers then followed, and the weather became squally.

(*To be continued.*)

THE NAUTILUS.

PART I.

HOMEWARD BOUND.

Haste, haste, trim the sails, the anchor's away,
 The breezes are fair, and admit no delay;
 As steed that is restless to dart o'er the plain;—
 Impatient to bound o'er the watery main,
 Our ship spreads her canvas, the sheets feel the wind,
 How soon she will leave the wild seabird behind.

Full six long years this busy world
 Had toil'd through all the varying scene
 Of active life,—and flag unfur'l'd,
 Our happy ship abroad had been,
 Since England's shores had faded to our view,
 When call'd abroad, we bade them long adieu.

Duty's commands must be obey'd,
 Who serve their country must abide
 The tedious absence, wearying made
 By sickly climes, where fevers hide,

Where suns are vertical, or snows abound,
 And massive, thick-ribb'd, ice, is ever found :
 Oft has it been our lot to roam
 On distant coasts, far, far from home,
 To note with scientific art,
 The shores contour in every part,
 With all the help that science can combine,
 Its various features strictly to define
 For seaman's use on charts of varied line.
 Such were the duties to our ship assign'd,
 Of higher class than usual 'tis to find :
 Yet time wears on, man's energies decline
 Unless renew'd, with sameness he'll repine :

Ah, who can tell the raptures of the heart,
 The rush of joy those thrilling sounds impart,
 That treat of home? when tried is every clime,
 Through long enduring years of tedious time?
 Yes, he alone, who leaves dear friends at home,
 From whom by duty he's compelled to roam ;
 He only knows what transport can be found
 In those few magic words, " We're homeward bound !"

The Voyage.

At length our toils are clos'd ; the Sandwich group,
 'The first steps witness'd of our home bound troop :
 And soon was Mauna Loa lost in shade,
 As the ship's course for the Ladrões was laid :
 Again Assumption peer'd above the sea,
 The northern isle lay under our lee ;
 Yet first to Hong Kong island were we bound,
 And on our voyage thither soon we found
 A troubled sea, that never was a boon
 To ship hard press'd by furious monsoon.
 The Bashee islands next appear in view,
 And beautiful Formosa's charming hue,
 With groups of Sampans dancing on the wave,
 And lumb'ring junks, which to the picture gave
 A novel charm, graced by the flowery isle,
 Whose beauties we were surveying the while ;
 As onward for Hong Kong we shaped our course,
 The monsoon blowing with remitting force.

Reader, art thou a stranger to the sea?
 Or, are its mysteries not unknown to thee?
 Hast thou yet revell'd in a bed of light?
 From undulating sparks, on clear dark night,
 And as your vessel reel'd upon the wave,
 Volumes of brilliants each fresh ripple gave;—
 Brilliants on which with ecstasy we gaze,
 While here and there the sea is in a blaze;
 Vivid as fire of domestic hall,
 Yet no fire, phosphorescent all!
 Such are among the "Secrets of the Sea;"
 Such is full oft the seaman's lot to see,
 Forming a part of tropic scenery.

Hong Kong to us appeared as one great hive,
 With ships, yachts, boats, sampans, and junks alive.
 No easy task to thread one's way between
 The various craft that here are to be seen;
 The anchorage to gain. Eight years have pass'd,
 An interval in which Hong Kong grew fast;
 From a small, poor, and unimportant town,
 To one of elegance and some renown:
 Government House a palace has become,
 Buildings substantial, ornamental some;
 Adorned this much frequented harbour's tide,
 And with a fine cathedral by their side:
 In fact, a mass of structure rais'd with skill,
 Covers the whole face of Hong Kong's steep hill;
 As from the anchorage it now is seen,
 From Western point to Matheson Jardine.
 Alas, let faithful friends say what they will,
 Hong Kong's the grave of Europeans still:
 But 'tis, no less, the entrepôt of trade,
 And a large storehouse for the Chinese made.
 Our stay at Hong Kong happily was short,
 And ill inclined were we at all to sport
 With such a sickly clime; for soldiers here
 Are swept away by hundreds in the year!
 To happy valley—few who do not know,
 By Hong Kong fever doomed alas to go!
 Unwholesome pause this for our home-sick crew,
 Yet requisite to embark a worn out few
 Of England's sons, with anxious hearts that burn,
 As we ourselves, to England's shores to turn
 From sickly Hong Kong's land: why sick? unfair,
 Because secluded from the sea-breeze air.
 And as on home our thoughts had long been fixed,
 And cared not with the fever of Hong Kong to mix,
 With grateful hearts the morning glad we hail'd,
 When straight for England from Hong Kong we sail'd.

Before us now expands the China Sea,—
 One maze of shoals in close proximity :
 Again we take our solitary way
 O'er ocean waste, where rocks of coral lay,—
 And yet not solitary ;—here and there
 Dotted with sail, 'tis looking bright and fair ;
 Of surface smooth,—no danger to beware :—
 Yet trust it not : there lurks th' insidious shoal,
 Whereon, in angry seas, huge surges roll !
 That unsuspecting barque, ere morning's sun,
 May find herself, by stealthy currents run,
 Hopeless and helpless on the Paracels ;
 Dash'd on the ruthless rocks, as hist'ry tells,
 Inevitably lost :—as oft before
 Hath been th' unhappy lot of many more,
 Forgotten long,—save some to mem'ry dear,
 Claiming at times affection's silent tear :
 Those shoals of China Sea full many a tale
 Have left of seaman's ruin to bewail !

Adieu ye terrors of the ocean wave,
 Adieu ye headstones of the sailor's grave,
 Ye coral dangers of the China Sea,
 Ye rocky isles and shelves, adieu to thee !
 See yonder tower, standing clear and free,
 More friendly beacon than thou would'st be
 On Pedra Branca's rock proclaims, that we
 Are nearing Singapore, and when at night
 With fire crown'd, it bears the Horsburgh light :
 Befitting monument of seaman's fame,
 Preserving for posterity, a name
 That laboured long, with scientific art,
 To make correct the navigator's chart !

Ah, 'tis a tedious ill requited task
 To map the ocean's bosom, with its mask
 The restless wave ; to keep from fatal harm
 Th' unwary seaman free from dire alarm
 Of hidden rock, or shoal ; and well it be
 The lead explores, that which he cannot see.
 A noble work it stands, the Horsburgh light,
 Proudly alone on well selected site ;
 Extending welcome either day or night
 To every argosy from every shore,
 The beacon of the Straits, and even more,
 The guardian sentinel of Singapore !
 Monitor, shine on, be faithful to thy task ;—
 Through future ages still, as through the past.

Soon to this anchorage we bade adieu,
 Our homeward progress anxious to pursue;
 And as we quickly spread the swelling sail,
 Onward we bound before the fav'ring gale;
 And Pulo Leat stands forth to tell a tale
 Of wreck and ruin! Th' Alceste rock defies
 The stoutest ship:—a subtle danger lies;
 Memento of Sir Murray Maxwell's loss,
 When charts in use were little more than dross!
 Soon was the passage cleared such dangers yield,
 And quickly, too, the strait of Macclesfield;
 Gladly we bid adieu to Eastern land,
 Java and Sumatra on each hand;
 We quit these waters by old Sunda Strait,
 The Indian Ocean's much frequented gate.

'Tis pass'd, our ship's relieved from narrow seas,
 Now sailing free with fair and steady breeze;
 Before us, here, wide ocean's open space,
 No sunken danger now requires a place;
 Our only care to shape our compass course,
 And crowd all sail, our noble ship to force
 Onward for Albion's home, still far away;
 We're homeward bound, and care not to delay!

Cocos or Keeling Island served askance,
 To regulate our reckoning by a glance,
 Chronometers to check, a distant run
 In this long voyage, we have now begun:
 A tedious time before us to the Cape,
 O'er monster seas our devious course to shape;
 A run of clear five thousand miles to make,
 Ere a fresh harbour we can hope to take:
 To cross the district of the hurricane,
 That chief of storms, well called the Scourge Mundane:
 Yet which with Redfield's clear unerring laws,
 We hope t' avoid, and thus without a pause
 To interrupt our progress to the Cape,
 Free from all let or harm of any shape.

How can the Muse pass by that worthy name,
 Of Redfield, and not recognize his claim
 To be recorded in that scroll of Fame,
 With those who've forwarded th' important cause
 Of navigation's valuable laws!
 The principle found out on which they blow,
 While round their focus or their centre flow
 And onward sweep, revolving all the while,
 In their own fashion and peculiar style,

Redfield, is thine! thine was it to diffuse
 This great discovery for seaman's use!
 North and South of the equator they abound,
 Yet this the principle on which you found;—
 That, in the circle which the true wind shows,
 The part adjacent to the equator blows
Always FROM West! and *this* on either side,
 North or South of it, as the ship may bide.
 Thus in a circle, has a ship the wind
 From whatever point it be, she can find
 The direction in which the focus lies;
 And thence avoid it, as the law implies:
 Redfield, thy name should never be forgot,
 While to meet hurricanes is the seaman's lot;
 Thou hast supplied him with all proper form
 To enable him to deal with *circle* storm.

Once more upon the wide, wide fickle sea
 Our ship obedient to the winds and free;
 Fondly we turn to others' noble strain,
 Who've thus address'd the world encircling main:

“Roll on, thou deep and dark blue ocean roll!
 Ten thousand fleets sweep over thee in vain;
 Man marks the earth with ruin,—his control
 Stops with the shore;—upon the watery plain
 The wrecks are all thy deed, nor doth remain
 A shadow of man's ravage, save his own,
 When, for a moment, like a drop of rain,
 He sinks into the depths, with bubbling groan,
 Without a grave, unknell'd, uncoffin'd, and unknown.

“His steps are not upon thy paths,—thy fields
 Are not a spoil for him; thou dost arise
 And shake him from thee; the vile strength he wields
 For earth's destruction, thou dost all despise,
 Spurning him from thy bosom to the skies,
 And send'st him, shivering, in thy playful spray,
 And howling to his gods, where haply lies
 His petty hope in some near port or bay,
 And dashest him to earth—there let him lay.

“The armaments which thunder-strike the walls
 Of rock-built cities, bidding nations quake,
 And monarchs tremble in their capitals,
 The oak leviathans, whose huge ribs make
 Their clay creator the vain title take
 Of lord of thee, and arbiter of war;
 These are thy toys, and, as the snowy flake,

They melt into thy yeast of waves, which mar
Alike the Armada's pride, or spoils of Trafalgar.

“Thy shores are empires, chang'd in all save thee,—
Assyria, Greece, Rome, Carthage, what are they?
Thy waters wasted them while they were free,
And many a tyrant since; their shores obey
The stranger, slave, or savage; their decay
Has dried up realms to deserts; not so thou,
Unchangeable save to thy wild waves' play:
Time writes no wrinkle on thine azure brow;
Such as creation's dawn beheld, thou rollest now.

“Thou glorious mirror, where the Almighty's form
Glasses itself in tempests; in all time,
Calm or convulsed,—in breeze, or gale, or storm,
Icing the pole, or in the torrid clime
Dark-heaving; boundless, endless, and sublime,—
The image of eternity,—the throne
Of the Invisible; even from out thy slime
The monsters of the deep are made; each zone
Obeys thee; thou goest forth, dread, fathomless, alone.

“And I have loved thee, ocean! and my joy
Of youthful sports was on thy breast to be
Borne, like thy bubbles, onward;—from a boy
I wanton'd with thy breakers,—they to me
Were a delight: and if the freshening sea
Made them a terror, 'twas a pleasing fear,
For I was as it were a child of thee,
And trusted to thy billows far and near,
And laid my hand upon thy mane, as I do here.”

Thus Byron sang, and thus full many a lay
Of his, has charm'd me in my giddy day
Of youth, when, like him, I believ'd the sea
Was fathomless, as ocean ought to be!

Yet in our haste the sweets of home to gain,
There's one among us, who must not remain
To share our joys, nor yet his home to see,
Mark'd by the arch-destroyer soon to free
From mortal life:—th' effects of arctic cold
Upon his frame had too severely told;
Still ling'ring on e'en change to warmer clime,
Could not suffice t' avert the fatal time:
Too soon he fell, in life's gay youthful prime,
Lov'd by his messmates for his mind sublime:

'Tis painful thus, in spring of youth to find,
 A dear companion, e'en to fate resign'd,
 Cut off in early life; alas, how short
 The longest is; how truly we are taught
 By bard that "Life can little more supply
 Than just to look about us and to die!"

A sailor's funeral, and a sailor's grave,
 Are soon prepar'd:—with him the dark blue wave
 Is always ready to receive his corse!
 Duly prepared, sewn up in canvas coarse,
 With weights, that in the deepest of the Deep
 It may remain in undisturbed sleep.
 Unlike the catacombs of Egypt's strand,
 Those of old Neptune, who abhors the land,
 Yield sleep profound, until the latter day,
 When awful summons to the soul will say,
 "Appear for judgment!" No rude hands invade
 These dark recesses, by no mortal made;
 These watery chambers, where long silence reigns,
 Long as its present form the globe retains!
 Such the catacombs of the briny deep,
 Where pilgrims rest in one perpetual sleep:
 A few short prayers are said in solemn strain,
 The corse committed to the restless main,—
 "One sullen plunge and all is o'er,"
 "The sea rolls on as it rolled before!"

The breeze now freshens, promising a gale,
 That will reduce our present ample sail;
 Slackening, too, our accelerated pace,
 And disappointment paint in every face:
 Too true it is,—barometer confirms
 In minutes few, falling, in warning terms.
 Quickly the sail's reduced, small spars sent down,
 And quietly we wait for further frown
 Of blust'ring cloud, that fiercely past us flies,
 Boding no good, and wherein mischief lies.
 As day wears on the wind in fitful gust,
 Gives ample warning where to put our trust:
 Our place was treacherous, in the tract forlorn
 Usually taken by the circling storm:
 Mauritius not far off;—the season, too,
 In which it comes, whole fleets of ships t' undo!
 Our best was done;—the ship was snug aloft,
 And come what might, the danger was not scoff'd.

Hark, that cry, "A man overboard!" is heard,
 Swift as an arrow fore and aft the word

Repeated flies; 'twas off the lee cathead
 He fell, and as she slowly forged ahead
 Under storm sail, the ship upon him drew;
 The sea all foam: yet soon the ready crew
 Flung ropes, then to the boats direct their aims,
 "Keep fast the boats," the watchful chief exclaims,
 "Keep her thus,"—"Steady," to the helmsman cries;
 With nerves well strung, and watches for his rise:
 His keen eye sees the efforts of the man,
 Struggling in foam, and doing all he can
 In making for, and seizing rope the last,
 As the ship forged on, by him slowly pass'd.
 'Twas done, lost in the boiling surf he'd been,
 And now in his firm grasp a rope is seen:
 When lo, a sudden, unexpected wave,
 Lifts him on board, meaning his life to save!
 Strange freak of sea;—thus quiet all alarm:
 Aft there lay our seaman free from harm,
 The same who but a moment gone before
 For life was struggling hard, close by death's door!
 A Providence there is, who can fulfil,
 And guide our ends, "rough hew them as we will!"

The sky is lurid, threatening, and severe,
 The sea all tumult, and the scud too near,
 Fast flying by our mast-heads, as they reel,
 And with the wind, sufficient to reveal
 The fearful havoc on the watery plain,
 In which some ships are struggling in vain,
 Nearer the focus of the hurricane!
 What says the monitor? that valued friend
 Proclaims the weather is about to mend;
 The wind is fixed, still comes in fitful blasts,
 Slacking in squalls,—by which it seldom lasts.
 With us the danger's past; but yet the storm
 Some other part of ocean must deform!

'Tis pleasant sailing when the wind is fair,
 The sky serene, with pure and balmy air,
 The surface of the ocean undisturb'd,
 Save by the wavelet playing unobserv'd;
 A monster wave hereafter that will grow,
 When Æolus his magic skill shall show.
 Free from such trouble is our gallant prow,
 A lady's sea is that we sail on now;
 Banish'd all motion or unpleasant lurch,
 The ship stands upright, steady as a church;
 Gliding along with movement unperceiv'd,
 While from all care we seem to be reliev'd!

How like the common passing scenes of life
 A ship at sea! in one perpetual strife,
 Or tranquil rest, as in the peaceful calm:
 So prospers life, secure from every harm.

As we pursue our course from day to day,
 No sister sail to cheer our lonely way;
 No friendly signal with a friend's exchange,
 Nor aught some friendly words to interchange,
 Onward we stand, unheeded and alone,
 As lays our course across the torrid zone.
 Yet not unheeded nor alone are we,
 At home are friends whose kindest sympathy
 Is all we wish: how could we be alone?
 Where finny tribes, with finny monsters thrown,
 Would now in sea, and now in air would soar,
 To escape pursuit of swifter albacore!
 Have we not seen full often in our wake,
 The hungry shark the smallest offal take?
 Following the ship, (and a bad omen, too,
 As superstitious seamen think is true,)
 Until with jaws upturned he takes the bait
 Prepared, and fain would lose it, but too late!
 In some few moments on the deck he lies,
 The seaman's triumph, and a bleeding prize.

(*To be continued.*)

These lines refer to the return of H.M.S. *Herald*, Captain (now Admiral) Kellet, C.B. (at Malta), from her long absence in the Pacific Ocean surveying the shores of North and South America.

MORE FACTS FROM JAMAICA.

The 11th of October was a day never to be forgotten in Jamaica
 * * * The infuriated people pursued their infamous work until
 the night closed in. They struck down innocent men, ill-used Mr.
 Jackson, their devoted friend, (whose abrupt removal from the parish
 by Mr. Eyre, to the neighbouring place, as stipendiary magistrate, had
 carried such grief to the peasantry throughout St. Thomas-in-the-
 East,) and some of their besotted followers, who had had previous
 quarrels with Mr. Hire, at Amity Hall, murdered him on the spot,
 and, it is reported, left his son for dead in the house. In keeping with
 the African superstitions which had penetrated this mob, the poor
 Baron's fingers were cut off, the wretches declaring that they would
 write no more lies to the Queen.

Why did they allude to lies that had been sent to the Queen about them? Mr. Eyre had unwisely promulgated a letter which he received from the Colonial Secretary in respect to Dr. Underhill's private communication to him on the state of the peasantry, in the form of a Queen's proclamation. For weeks the police were running about the island, in towns, villages, hamlets, and every nook and corner, circulating these proclamations. State church ministers read them, and preached about them from their pulpits.

The negro haters revelled in Quashie's disgrace; he was reported to have petitioned for money, and her Majesty had ordered him to work like the English labourer. The planters rubbed their hands, and two of them, in my presence, expressed the hope that "the brutes" would have to be thankful for 9d. per diem. Dr. Underhill's letter to Mr. Cardwell was a perfect blessing to some of the newspapers; and there ran through the country a wild scream of delight that at last the governor had been ordered to proclaim to Quashie, as advice from the Queen, that he must work or starve. A very impulsive act of folly was this proclamation, of Mr. Eyre's. It did immense harm; it irritated the people, and their enemies were not slow in assuring the negroes that the Queen of England was now against them, and they might be put again in the bonds of slavery.

A severe drought just about that time spread additional dismay, and meetings were held throughout the colony. Dr. Underhill's letter was the topic of conversation wherever one went, and some of the planters and others gave vent to pungent utterances against the doctor. The parish of St. David's, adjoining St. Thomas-in-the-East, had its meeting on the "Underhill controversy;" and resolutions, expressive of the doctor's assertions, were passed and sent up to Mr. Eyre, who manifested his dissent from some of the views promulgated. Kingston had its meeting too, and very strongly endorsed all the utterances of St. David's. Mr. Gordon and his followers petitioned for a meeting in the Court House at Morant Bay, and leave was given by the baron; but, before the day for the meeting, he unworthily postponed it to a distant day without the consent or knowledge of Mr. Gordon and his people. Mr. Gordon, however, when the appointed day came, had his triumph; and then the people become thoroughly acquainted with the "lies" (so called) that had been written to the Queen about them.

On that day, too, they heard for the first time, that no less a sum than £250 of the collected taxes of the country had been scandalously misappropriated by Mr. Eyre and his executive committee, (composed of two sugar planters and a worthy coffee grower,) and given to Baron Kettelholdt, to defend himself against Mr. Gordon's action. Then it was that "friend to friend" told his particular grievance,—of justice denied him in the petty tribunals, over which the magistrate's assistant, Lawyer Cooke, another of the Cookes of the Rectory, exercised a most baneful influence; how wages at 8s. or 9s. per week dwindled down by unwarrantable stoppages to 2s.; how "Bushas" swindled, and attorneys pinched the pay; how criminal charges cropped up, and persons were dragged to gaol, there to remain for weeks, without investi-

gation of charges, so soon as wages were stoutly demanded, and threatened to be sued for; how the Scotch planters swore at negroes in "the Plaintain Garden River District," and made them work on Sundays; how really miserable was their case, with increased punishments, less pay, and no mercy in store for them. * * *

No sooner had the news of the outbreak reached Mr. Eyre, than he called a council of war at head-quarters in Kingston and martial law was promptly proclaimed. On the 12th Mr. Eyre left in the *Caravelle* for Morant Bay; and I am told he visited every post, and made himself thoroughly acquainted with the details of the riot. Some days after, and after the "rebellion" had been completely "headed," (to use his own language,) retributive steps followed. *There was no resistance, and not one single rebel was taken in arms; yet her Majesty's troops, blue jackets, and the savage Maroons, were suffered to scour the mountain fastnesses and villages, and to shoot down every black person they encountered.* The deeds of atrocity committed during the Indian mutiny, and all the horrors of Cawnpore, dwindle into insignificance when compared with the terrible work of destruction perpetrated by men wearing the Queen's uniform. Over 3,000 men, women, and children were butchered; and, from all accounts, far over 2,000 were despatched without any sort of trial. The soldiers of the West India Corps, under young and inexperienced officers, revelled in the work of destruction; and, in their march from Port Antonio to Manchioneal village, they encountered hordes of people running away for safety to the town, and it is known that over one hundred and sixty men and women were shot down.

The soldiers were under little or no control on the march, and they sported with the lives of the wretched fugitives. At Manchioneal, so furious for blood were they, that they prayed Captain Ford, of the volunteers, to allow them to shoot a number of trembling prisoners, which that gentleman wisely refused; and when Captain Ford reached Morant Bay with his prisoners, he was curtly asked, what he had brought them for, and whether he had not a sword by his side?

When a British officer could speak so lightly of human life, what could there be expected from an African soldiery? The sacred name of justice, so dear to us, became a solemn mockery, and men wept over the frightful scenes they hourly witnessed, and against which they durst not, for their own safety, complain. Women were exposed and cruelly flogged; many were hanged; and it is reported, and believed that two of them were hanged while in a state of pregnancy. Children at Manchioneal had their brains dashed out against stone walls, and their panic-stricken mothers, who had sought safety in the trees, were ruthlessly shot down.

Colonel Hobbs has slipantly told his own exploits at Monklands and Stony Gut; he might have added that hundreds of men were murdered without any sort of inquiry; that innocent men were taken from their cottages and coffee fields upon mere suspicion, and at the instigation of certain covetous planters, whose names will yet be told,

were led to stand as targets before the deadly rifles: that at and about Monklands the women were brutally insulted, their hair cut off closely, and foul substances were rubbed on their heads; that Campbell and old Wilson, two respectable property men, were captured and tortured with every indignity of conquest; that old men and women were not spared at Stoney Gut, while the entire village and valuable fields of provisions and coffee were recklessly consumed by fire; that horses belonging to the frightened people were seized by men of the 6th Royal, and taken to New Castle, and subsequently sold for mere trifles; that the Maroons, on seeing what the British soldiers were doing, rivalled them in every conceivable act of spoliation and brutality, and — I cannot pursue the sickening details that have reached me.

At Morant Bay a terrible work of destruction was going on. Who can describe the atrocious barbarities of that monster Ramsay, selected, it is said, by Mr. Eyre for the duties of provost marshal. My heart sinks at the recollection of this man's butcheries. Human life to him was nothing,—the lamentations of the old, the piteous cries of the young, and the shrieks of women, moved him not. The blood of George Marshall and others sent to their long account cry out from the ground. Without trial, and without any form of authority, this man, far away from Brigadier-General Nelson, revelled in the destruction of human life. Marshall ground his teeth from the agony of the cat-o'-nine-tails, and he was instantly hanged. Mr. Moodie's servant brought him his horse from the country, and the poor wretch was murdered on the mere suspicion that he was a rebel.

Hundreds of trembling wretches were wantonly flogged by the orders of this man Ramsay, who permitted as many *blue jackets* as relished the "sport" to flog each man. And what shall be said of Englishmen who took pleasure in pulling the legs of suspended bodies, and mocked and jeered at the struggles of dying men? What shall we say of men drinking spirits under the very gallows? What account will these men give to their mothers, their wives, and their children, when by the winter's fire they are asked to tell all they saw and did at Morant Bay during martial law? Ramsay's name will be for ever execrated; but how will our *British sailors* acquit themselves of the brutal outrages committed on down-trodden humanity? Ramsay might have hanged forty men to vindicate the slaughter of Mr. Walton; but what will those in authority say to their perturbed consciences? that the bloody battues took place without their knowledge.

Every man, where martial law prevails, is to be considered as a soldier, subject to articles of war; but it is not to be tolerated that the subjects of the Queen, not found in arms against their pursuers, shall be flogged or hanged just as it suits the pleasure of a drunken provost. Hundreds of men were "*called*," "to teach them better manners;" and it has come to my knowledge that Ramsay wantonly shot a boy at the White Horse, on the highway, to gratify his drunken whim.

I trust that now the British public have been aroused to the atro-

cious misdeeds perpetrated under the name of *martial law*, men like Ramsay, who rioted in bloodshed, will be made to suffer for their daring. * * *

Had there been a proper surveillance over the acts of Ramsay, many innocent persons would have been alive, and hundreds of men would have been spared the degradation of the lash. Others, again, like the murdered Samuel Clarke, of St. David, the opponent of Mr. Custos Georges, of that parish, would not have been lashed with the *cat* before being hanged, as he was, on the flimsy, worthless evidence which consigned him to an ignominious death. Samuel Clarke was a thorn in the side of the plantocracy; he was a friend of Georges at one time, but they quarrelled, and the labourers sought his protection on every occasion when they were wronged. Clarke became a marked man; he was captured in a district where martial law did not prevail, taken to Morant Bay, flogged the day he arrived there, by the order of Ramsay; and some days after, when Georges was able to come and give evidence, he was tried, of course convicted, and hanged without even the privilege of seeing his family. Will the government suffer this man's case to go unexplained? Will they permit that other case of the man taken from the Kingston Penitentiary to Up-park Camp, and hanged for some idle expressions of bravado, to pass by?

With Gordon's murder came the most illegal and arbitrary measures in Kingston, where martial law did not exist; and such was the madness of those entrusted with power, that highly respectable gentlemen, both in Kingston and other places, free from the operation of military law, were seized on the most flimsy pretexts, and taken as prisoners to Up-park Camp, within the district of martial law. Dr. Bruce, a venerable gentleman, the descendant of a royal race, was lashed to a cart and taken from the county of Middlesex to Morant Bay. Mr. Levien, an accomplished gentleman, the editor of a Cornwall paper, which systematically told Mr. Eyre his faults, was captured 130 miles away from the proscribed limits and taken to Morant Bay, to endure all the horrors so graphically described by him in his paper. Mr. Crosswell, a German gentleman of excellent character and accomplished mind, a merchant in Kingston, was dragged from his family, and kept for weeks at camp, and after thirty years' residence in Jamaica, ordered to depart from the island in fourteen days. * * *

No person of liberal politics was safe for an hour in Kingston, The press was insulted with threats of annihilation, and the editors of the Kingston papers necessarily became alarmed for their own safety when Mr. Levien was kidnapped 130 miles off, and taken to Morant Bay. Even now the press is shackled, and men of family tremble for the safety of their households. Under the infamous laws recently passed by a slavish parliament, Mr. Eyre might again call his council of three, and put the island under martial law, and then the hellish saturnalia of blood once more.

I must continue to mention other names. Numerous respectable black men, Harry, Miller, Jeffery, Rev. Palmer, Rev. Roach, and many

others, were arrested in Kingston, and taken to Morant Bay, under no better authority than that of Mr. Custos Bowerbank. * * * Dismay spread on all sides; the manhood of Kingston was crushed out of it by acts of outrageous illegality, and no one dared to express pity. Spies of the most degraded character were sent prowling about; an unnecessary display of munitions of war, with constant calls for armed men, was made, and all business suspended. The despair, the horror, and the tears of the people, attested what their feelings were.

On the very day Mr. Eyre published his amnesty proclamation, the outrages on liberty culminated by the arrest of Mr. Nathan, attorney-at-law, a member of Assembly for the parish of Portland, and a man of some renown in his profession. * * * He will visit England very soon, it is reported, and British philanthropists will learn from Mr. Nathan's own lips the terrible wrongs done by Mr. Eyre and the wicked men who have guided him in Jamaica. Then, perhaps, it will be known why, to gain popularity, a riot was magnified into a rebellion, and how half-witted men, and government *employés*, may be induced to sign complimentary addresses to a governor who has disgraced the English nation by acts of unmitigated cruelty and revenge. Men before the commission of inquiry will speak out, but at present no man dare speak the truth for fear of persecution. I myself pen these observations in fear and trembling, for life is not safe so long as Mr. Eyre and his accomplices remain in Jamaica.—*Daily News*.

[The writer will be glad to know that Mr. Eyre is no longer governor of Jamaica, thanks to the measures which secured the recent inquiry into his administration.] ;

GRANTS FOR HARBOURS OF REFUGE.

Harbours of Refuge, except for military purposes, are as far off being formed as they were before the Commission of Inquiry reported on the subject; and, judging from the answer given by the President of the Board of Trade, in the House of Commons on Tuesday evening, to the inquiry of Mr. Pease, as to whether her Majesty's government proposed to take any steps in the construction of such havens, having special reference to the report of the Commissioners on Harbours of Refuge 1859, and to the annual wreck returns, we see no prospect of any steps being taken to remedy the evil so long complained of. Mr. Milner Gibson said that it was not the intention of the government to carry out the recommendation of the commissioners. Money, he added, had been advanced, and was being advanced, to promote the construction and the improvement of harbours, several of which would fulfil the purposes of harbours of refuge; and, as far as the wreck returns were concerned, there was nothing in them, he said, to show that a large

proportion of the casualties arose from the absence of harbours of refuge. Into the arguments for promoting harbours of refuge we need not enter, having discussed this question on so many former occasions; but we will state what has been done in the way of loans to supply, as Mr. Gibson holds, in part, the place of harbours of refuge.

At Belfast, the sum of £100,000 has been granted towards making a floating dock, entrance basin, and graving dock, for commercial purposes. At Bangor, £3,000 has been granted for extending and widening the northern pier, to facilitate trade; £6,000 has been lent to Carrickfergus, to construct a pier and breakwater; Dartmouth has been granted £11,700 for a quay, roadway, tramway, shed, a pier, and two jetties; and a further sum of £2,300 for a lighthouse, day beacon, and for blasting the Pin Rock, to improve the approach to the harbour. The Trinity House of Dundee has been granted £4,000 for new lighthouses at Buddoness, and improvements of the Craig Lights, on the Frith of Tay. Falmouth has had £50,000 for completion of graving dock, outer breakwater, removal of rock, and dredging of entrance to harbour to a depth of eighteen feet at low water, in order to increase trade, repair vessels, and provide shelter to slips. Fishguard has had a grant of £500 towards completion of pier, to give better accommodation to steam-vessels and fishing-boats. Greenock has been loaned the sum of £140,000 for pier and tidal harbour, and extension of the Albert Harbour, for the use of ships in the North American timber trade, and of large coasting steamers.

Harwich secured £10,000 for constructing a groyne and sundry channel works for the preservation of the harbour, by preventing the extension southward of Landguard Point. In the Isle of Man, £26,000 has been granted for a breakwater at Douglas, £9,000 for extension of pier at Ramsey, £10,000 for the breakwater at Peel, and £58,200 for Port Erin pier and breakwater. These will, no doubt, succour the fisheries, and the latter will ultimately, as set forth in the memorial, afford accommodation for passenger trade.

Kirkwall receives £11,000 for extension of the existing pier for purposes of trade in passengers and goods; Leith £223,000, for a dock and entrance basin; Llanelly £50,000 for a lock and dock for export of coal and import of ores; Looe £4,000, for improvement of quays, extension of breakwater, and dredging of harbour, so as to supply shelter for fishing and other vessels; Lyme Regis £4,000, for improving the quay, raising sea walls, and dredging the harbour; Newhaven £42,000, for strengthening and dredging the channel of the river, purchase of land, bridge and tramway, for general trade, oyster fishery, and shelter; Rosehearty £3,000, for extension of piers and deepening of part of the harbour for trade and fisheries; Tees £30,000, towards completion of breakwater in south entrance, and construction of breakwater in North Gare entrance of the river, to provide shelter for the shipping frequenting the port, and also of traders on the North-east coast; Tyne 150,000, for continuing the sea piers, and to offer "better shelter and improvement of navigation" an additional claim for £50,000 is "in suspense;" Waterford £25,000 for deepening the

River Suir; Wear £150,000, for a breakwater at the south side of the present outlet, entrance channel lock, and additional dock for the sheltering ships, and affording increased facilities for trade; Whitehaven £100,000, for increased dock accommodation,—a second application was made for £50,000, of which amount £40,000 was granted, and the whole afterwards abandoned; Wick £60,000, out of £80,000 applied for, for making an outer breakwater seawards of the present pier, extending, in a north-easterly direction, 500 yards into the bay; and, if this projection answers the object in view, there is to be a jetty and a transverse breakwater, for the shelter of boats engaged in the northern herring and long line fisheries, and accommodation for trading steamers and sailing vessels.

Besides those alluded to, the applications from fifteen other ports were rejected,—the most notable of which is that of Galway, asking for £75,000 for a causeway to Mutton Island and construction of a dry dock, 50,000 for a graving dock, and £150,000 for works to establish a packet station for transatlantic mail steamers. Some of the works for which grants have been solicited have been carried out by local subscriptions or private enterprise,—as, for instance, the pier at Deal for landing and embarking passengers and goods, convenience of her Majesty's ships, and of vessels in the Downs. On a scrutiny of all these grants we must admit that several of them, in the words of Mr. Milner Gibson, will fulfil the purposes of harbours of refuge, but not in the places where they are most urgently required.

The majority of the improvements will benefit small vessels; and this is most decidedly an advantage, for the fisheries are a source of wealth, affording employment to many thousands of people, and the protection of the boats and crews engaged in this trade is deserving of every commendation. The larger class of vessels, however, stand in need of a refuge at low water, and in ports whose entrance channels are deep. A few only come up to this requirement. These are,—Falmouth, at the western entrance; Greenock, for the Clyde ports; the Tees and Tyne, for the North-East coasting vessels. The Tees lies too much in a bight and too far northwards for a shelter to coasting vessels; and the Tyne, though admirably situated for the shelter of ships caught in a storm off that line of coast, is a long run from the Humber. In the grants to harbour authorities we do not find any application from ports between the Humber and Tees for a public loan, where a haven of refuge is so much wanted.

The harbours constructing at the national expense are drawing near their finish. The estimate for Dover was £650,000. Up to last year £639,000 had been voted, and the vote for 1866-7 is £25,000. For the extension of the pier-head, to ensure the safety of the structure, another £75,000 is required, and £10,000 is to be expended this financial year towards this supplementary work. The original estimate for Alderney was £1,300,000, of which £1,207,000 has been expended, and the vote this year is for £40,000, by which it is seen that the first calculation has been exceeded. Portland was to have been finished for £1,047,125; and, including the vote of 1865-6, the sum

DEEP SEA SOUNDING MACHINE

invented by

LIEUT. C.C PENROSE FITZ GERALD, R.N.

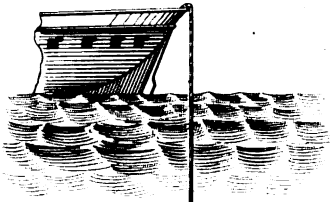
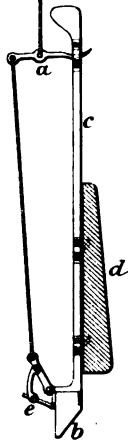


Fig. 1.



Going down.

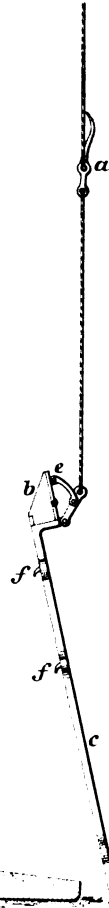


Fig. 2.

Coming up.

Malby & Sons, Lith.

expended on this harbour was £1,035,000. The vote this year is for £7,000. Holyhead, by estimate, was to have cost £1,545,000; by extensions the breakwater has entailed the outlay of £1,472,845; and the vote this session is for £39,350. Portpatrick works were estimated at £45,610, and £42,991 has been expended; the vote this year for works is only £500. At the two latter harbours there is also a shore establishment to support, consisting chiefly of superintendents and mail officers. On these projects, therefore, there has been voted £4,396,836, spread over a series of years, and the aggregate vote of 1866-7 is for £121,850.

As the expenditure on these works will shortly cease, we see no reason why the harbours of refuge demanded for the protection of merchant shipping should not receive favourable consideration from the government. Going back to the report of the commissioners of 1859, it may be remembered that it was proposed to build life harbours at Wick, Peterhead, Carlingford, Waterford, Douglas, St. Ives, Padstow, Tyne, Hartlepool, and Filey; and the estimated expense for those works was £3,990,000, of which £1,625,000 was to be locally subscribed. The ports assisted, it will be seen, include Wick, the Isle of Man, and the Tyne; but nothing has been done for the Yorkshire or Western coasts, where the greatest sacrifice of life and property takes place.—*Shipping Gazette.*

DEEP-WATER SOUNDING MACHINE.—*Proposed by Lieutenant C. P. Fitz-Gerald, of H.M.S. "Cordelia."*

With a Plate.

Notwithstanding the numerous attempts to bring up specimens of the ocean-bed at great depths, beyond that of the usual deep sea line, and its cumbrous lead, (which is still in use in the royal navy,) from the first "clam" of Sir John Ross of Arctic memory, down to the *Bulldog's* machine of her Captain (now Commodore), Sir Leopold M'Clintock,* an improved machine still remained as a desideratum; and this seems to have been at length supplied in the ingenious contrivance of Lieutenant Fitz-Gerald, a description of which the Hydrographer to the Admiralty, Captain G. H. Richards, enables us to preserve in these pages.

It is evident from the drawing that the three great principles of certainty in its action, along with simplicity and lightness of construction, are combined. A wrought iron rod, about four feet long, is the principal feature of the machine, which, with its little box, &c., and a sinking weight of 80 or 90 lbs., composes the whole of it.

* Alluded to in our volume for 1861.

The following brief description of it and its parts, with the plate attached, will convey to our readers a correct idea of Lieutenant Fitz-Gerald's ingenious devise.

Description of the Machine.

Figure No. 1 represents the machine in its descending position, and Figure No. 2 shows it when being hauled up.

The end of the sounding line is secured to *a*, an iron catch, which is itself connected with *b*, a box at one end of

c, an iron bar, about 4 feet long, by means of a line not quite so long as the bar, as shown in the figure.

By means of the catch, *a*, and the line attached to the box, *b*, the bar is suspended in its descent; the box being open at the lower end, so that it is compelled to enter the ground on reaching it. When this takes place,

d, a sinking weight of 80 lbs. (to be varied according to depth) slips off, *f, f*, the hooks of the bar and is left on the ground on the bar being hauled up: the action of which closes

e, the door of the box, by its joints pressing them tightly by the weight of the bar itself, and thereby prevents the ground in it from being washed out as it ascends to the surface. On its way as it is hauled up, the machine assumes the position shown in figure No. 2, the sinking weight, *d*, being left at the bottom, and thus a fresh sinker must be provided for every cast.

There is so much simplicity about the whole machine, that the foregoing sufficiently explains all its parts, which may be readily made on board any ship that has a blacksmith, and the certainty of its operation will well reward the work of a day.

We congratulate Lieutenant Fitz-Gerald on the success of his ingenuity, which has received the full approval of the Hydrographer to the Admiralty, at whose suggestion we understand it is in use on board the *Terrible* and the *Great Eastern*, in their interesting voyage with the cable. Our surveying ships now fitting for foreign service will also have it. The greatest depth at which it has at present been used is not more than 150 fathoms; but there does not appear to be any limit of depth at which it may not be used, provided the line be strong enough to withstand the fraying effects of friction along with its own weight, and the 10 or 11 lbs. of the rod and its box, as these are being hauled up;—which all together are much less than any hitherto used.

A MODERN BRITISH GOVERNOR OF JAMAICA.

The following picture is too good not to be saved from the oblivion of the daily prints:—

“At the risk of trespassing somewhat largely on your kindness, I

must first describe one or two little matters not perhaps generally known. The salary of the Governor of Jamaica is £5,000 a year, partly paid by England and partly by Jamaica. His residence in Spanish Town is a large, well-furnished building, almost a facsimile of the vice-regal lodge in the Phoenix Park, Dublin, and is situated about half a mile from the station of the railway between that town and Kingston. His mountain residence, Flamsted, is about twelve miles from Kingston. His practice was to go generally twice a week on business to Spanish Town, the seat of government, and to get there he had to ride four miles down the mountain, then drive eight miles to Kingston, and then travel twelve miles by train from Kingston to Spanish Town. From the station there to the King's House, as the governor's residence is called, had he gone as other governors before him went, he would have gone in his own carriage; but, keeping none, he went in the Spanish Town 'bus.'

"But now, sir, I must pause to describe the Spanish Town 'bus,' although no description I can give of it will enable your readers to realize what that vehicle really is. Nothing but a photograph, coloured, to show the dirt, and the faces inside, could enable anyone to realize it.

"It is a sort of square rattle-trap to hold six, with a canopy and curtains hung over a pair of large wheels, of which the axle passes under the centre of the body; a pair of small wheels in front turn under the driver's seat. The whole thing looks as if it were going to fall to pieces, and the bottom of the 'bus' is of that quality that I have seen the legs of a corpulent gentlemen go through the bottom, and himself seated *à cheval* on the axle. If the 'bus' happens to be out of doors when it rains, it is washed, and so is the boy who drives it, who has on a ragged shirt and trousers, which apparently he never takes off; never has on any shoes, and rarely a cap. He is, in fact, what is understood by a 'dirty nigger.' The two ponies which draw it would be thought here to be rather out of condition for the kennel, and the old rope harness has generally to be tied up and mended once or twice between the station and the town.

"This respectable turn-out was a vice-regal carriage, and the only one, in Spanish Town for five months, during which the governor having made an equally economical arrangement for his conveyance in a somewhat similar vehicle from Kingston to the foot of the mountain, and from that point to Flamsted, on a pony borrowed at a dollar a day (from which his Excellency once fell, broke his foot and nearly his neck), he had neither carriage, horse, pony, nor donkey on which to uphold the dignity of his high office as representative of her Majesty. The same economical turn of mind caused him to bring down from his mountain residence to Spanish Town his breakfast and luncheon, in two or three little elongated baskets known as 'bancras,' which hung from his arm, and which on his return from Spanish Town to Flamsted, were refilled with materials for his dinner 'en gargon,' a couple of chickens, or pigeons being sometimes added on the way to the baskets.

"This is a style of living in the Queen's representative unintelligible even to black people, and to none in Jamaica was it more offensive than to them. As the governor walked the platform waiting for the train, the negro women, also waiting, might be heard to say to each other, 'Hi marm! dere's a pretty ting! *what sort ob gubnor dis de Queen send we poor negur now?* Hi! you ebber see ting like o'dat before, marm? *Gubnor go ride in 'bus longside of negur, and sailer from Port Royal.* Hi! de country gone down for true, marm. Gubnor go carry him bittle 'pon him arm like negur. Dere's a ting. Hi!"

"This is exactly what the governor did for five months, the 'bus calling to take up and to set down passengers at the several taverns on the way. Colonists expect that their public officers of high standing should appear decently and as gentlemen. The general, bishop, and commodore do so, as do most of the officers of lower standing. It was not, therefore, unnatural that the public should make their remarks on such disregard by the lieutenant-governor, with £5,000 a year, of the dignity of the high office he held, and comments on his conduct were made very freely in the public newspapers, hanging not having been then introduced.

"Seeing a storm brewing, the governor, taking the bull by the horns, at once wrote off to the Colonial Office, and gave his own peculiar view of the manner in which he was living. Such was his power of explaining, and that of the Colonial Office of believing, that the Duke of Newcastle was made to return an immediate reply, that he was perfectly satisfied with the manner in which he *maintained the dignity of the office*; and the governor as promptly wrote to the bishop, the general, and the commodore to inform them of his grace's *approval*. Henceforth, however, the style was somewhat improved, for about that time, a lieutenant-governor happening to touch at Jamaica on his way to England, where I believe he now is, £35 was invested in a carriage and £35 in a pair of ponies the day before his distinguished visitor's arrival, and sent to meet him at the Spanish Town station. The cuisine did not, however, improve, for the same lieutenant-governor twitted the writer of this with cunning for not having accepted an invitation to meet him at dinner, which he assured the writer he could have bought at any tavern in Spanish Town for eighteenpence a head. The late manager of the Jamaica Railway, now in England, can, with many others, also in England, confirm this statement, incredible as it may appear to be.

"In the tramway affair; the part the governor, to clear himself, accusing another of having taken in that matter; the main road frauds and forgeries, which resulted in the absconding of the secretary, and led to the dissolution of the Assembly in 1863; and the reasons he then assigned, without a shadow of foundation in them, for that wanton act; his own unpopularity, and the opposition he has had to encounter in Jamaica, have, I have reason to know, been all explained away to the *satisfaction* of the Colonial Office, as would have been the

recent catastrophe in Jamaica, had not the appointment of a royal commission been forced on the government.

“ This is the kind of governor sent to our colonies, at whose order the popular branches of their constitution are to be abolished, and their people be disfranchised, was contemplated to continue to administer the government of Jamaica. This, too, is the kind of governor conservatives mean to stand by, and having done so, they will of course, not object presently to the crown itself adopting, *peu à peu*, a somewhat similar style of maintaining its dignity and valuing truth.”

The foregoing picture of the habits of a modern governor of Jamaica who has distinguished himself pre-eminently over all his predecessors in the history of that island is borrowed from the *Daily News*. Of course he is a gentleman, and of course is gifted with that abundance of dignity of person that enables him to dispense with all the troublesome and cumbrous *personelle* and *meterielle* of governors in general, that even the old shaky 'bus of the island borrowed the grace and lustre of nobility, when it had the honour of bearing his excellency's presence.

A TYPHOON IN MAY IN THE CHINA SEA.

In the former numbers of this Journal we have dealt largely with the subject of typhoons, hurricanes, &c., and were the first to lay before the nautical world the discoveries and valuable theories of Redfield, and the labours of Piddington at Calcutta. This theory, it is well known, forms a portion of that information required in the commanders of our ships,—and we have for some years left the subject, as yielding nothing further of novelty,—the seasons of their occurrence being as regular as the character of the phenomena themselves. Still, as is well known, there is no general rule without its exception, and we preserve the following account of one happening out of season from the columns of the *Daily Press*, of Singapore, sent to us by its author,—that our readers who frequent the China Sea may be aware that these visitors do come out of season, and be prepared for them accordingly.

Sir,—To the majority of your readers, a typhoon is at all times a subject of interest, and to a limited, and in some degree a nautical portion, instructive as well. But as the normal time for those visitors may be comprised, generally speaking, between the beginning of July and the end of October, the interest will be considerably increased, and many will be rather astonished, if I am able to prove that we have experienced one on the 3rd of May, a true cyclone, and one of the most severe character.

It is true the senses are not always the best guides in determining the strength and velocity of the wind, nor is the state of the ship afterwards a safe criterion, since sailors well know that a ship may be

very deep, and possibly roll heavily, and thereby suffer much more than a light one, although both are equally well handled; therefore, in the absence of scientific instruments, something will have to be conceded to the experience and character of a person describing a typhoon.

Possibly I might claim this indulgence when I say that I have been in three in the China Seas, in harbour during the one of the 27th July, 1862, and driven on shore and wrecked during the great Crimean gale of the 14th November, 1854.

Now this savours much of egotism and yet I cannot well see how to avoid it, because this recent cyclone laid hold of us at such an abnormal time, that experience has neither registered nor published of one occurring at or about the same period, and hence the difficulty of proof without in some degree placing oneself in an ungracious and egotistical position.

I may premise also that the barometer used is No 565 of the description known as the "Fitzroy Marine" (used generally in H.M. Ships) made by Negretti and Zambra. An Aneroid, No. 389, also by the same makers. I have been thus particular as it is well known there are hosts of instruments at sea, which although of value as weather glasses, are quite unreliable in showing the normal pressure of the atmosphere.

In Piddington's *Hand Book of the Law of Storms*, 2nd Edit. 1855, foot note, page 48, says:—"I have found as yet no record of a typhoon occurring from the first of December to the 31st May, in the China Sea, but in my seventeenth memoir above alluded to, I have printed a notice of a doubtful typhoon from the Singapore *Free Press*, which is said to have been experienced from the 21st to the 24th May by the Spanish brig *Dardo*, in lat. 14° N., long. $119^{\circ} 30'$ E., but this may have been the outset of the monsoon."

The above is the only notice I can find in any of our standard works on the subject, however I hope to be able to prove this one to the general satisfaction.

At noon of the 30th ult. we were in lat. $14^{\circ} 33'$ N., long. $115^{\circ} 16'$ E., bar. 29.90, wind at N.b.E., moderate breeze, and a head sea, ship on the port tack, and continued so during the night, as the wind drew to North. At noon, May 1st, lat. $14^{\circ} 40'$, long. $116^{\circ} 34'$, bar. 29.78. Wind at N.N.W. and increasing, and the weather might be considered as looking somewhat gloomy, especially to the eastward. Sea considerably higher, still no apprehension of a typhoon, considering the season, but merely the breaking up of the monsoon and an expectation of a S.E. wind.

May 2nd at 9 a.m., bar. 29.66, sea very high, wind at N.W. and blowing a gale.

Noon, lat. $14^{\circ} 25'$ N., long. $116^{\circ} 6'$ East by acc., bar. 29.62. At 3 p.m., bar. 29.58, wind stronger. At this time I was forced to recognize the probability, nay the certainty of the centre of a cyclone, bearing North from us,—the wind being at West, had veered since day previous precisely in accordance with theory, and I judged its pro-

gression to be about or nearly W.N.W., therefore I was justified in running, as I might expect to carry a S.W. and South wind right round the eastern side of it, and consequently a good distance to the northward. So at 3h. 30m. p.m. bore up and run under two close reefed topsails and reefed foresail N.E., twenty miles, wind at S.W.b.W. During the afternoon I made a good approximation towards ascertaining the height of the waves by transit bearings simultaneously of the horizon, ahead and astern of the ship, and noting the heights on the masts. From a mean of such observations (which I have practised with success in many parts of the world) the height given was 52 feet or 26 feet above the mean sea level, a height I have not seen approached in the China sea before.

At 8h. p.m. (May 2nd) the barometer had fallen to 29.48, wind at S.W., and the sea being well abeam still, and coming on board in rather large quantities so as to smash our weather quarter boat, we somewhat reluctantly hove to after losing our fore topsail. From thence I was astonished at the marvellous concurrence between theory and experience. The barometer gradually rose to 29.58 at midnight, 29.62 at 2h. a.m. May 3rd, and wind drew to S.S.W. The reason was obvious, and I could not help expressing it at the time "The centre is bearing W.N.W. and leaving us on that bearing, and now we will go on." So at 2h. 30m. a.m. (May 3rd) we bore up and ran about N.b.E. with the wind at South. However very soon after the barometer ceased rising, remained stationary until 11h. a.m., then began to fall; weather becoming very bad indeed; sea higher than the previous day, but could not see the horizon.

At noon, lat. $17^{\circ} 6' N.$, long. $117^{\circ} 18' E.$ by acc. At 3h. p.m., bar. 29.28, wind due South, and weather frightful, and I feel quite unable to describe it. Wind, rain, spray, and lightning, all seemed commingled in one grand mess, and pelted at us with tremendous force. Thunder possibly there was, but out of the question to distinguish it from the general roar.

Such a fall of the barometer during the last three hours, with the wind steady at South, convinced me that the centre had recurved, and was travelling to the N.E., and if we continued running, in a very short time we would find ourselves right into it. I therefore chose the apparent lesser evil, and rounded to at great risk. The ship was but a minute or so hove to, when the main topsail flew in shreds, and we lost our lee (port) bulwarks, boat, deck cargo (acids). Cabins full of water, and generally speaking things did not look cheerful. The lee side of the ship quite seemed buried under the water, and a kind of peculiar undescribable feeling pervaded us at times, that we were not quite sure whether it had not gone altogether, and left us sticking on the weather half.

At 5h. p.m., bar. 29.08. This was the lowest observed, but as we were pretty busy, and only got one sight between 3h. and 8h. p.m., possibly it may have been lower. At the latter time it was 29.21, and kept slowly rising, and we were able to notice a perceptible decrease in the fury of the storm. Midnight, bar. 29.36. Set a close reefed

upper main topsail, and gradually followed it up. The wind veered to S.W. and W.S.W., showing, I think, very clearly, that it was going North or nearly so, and the centre was then bearing N.N.W.

Probably the reports of other vessels may define its limits very accurately. Our position when we rounded to would be about lat. $17^{\circ} 30' N.$ and long, $117^{\circ} 20' E.$ From my own projection I would say the centre recurved about lat. $16^{\circ} 10' N.$ and long. $116^{\circ} 30' E.$

I have to regret this letter being so long and so *nautical*, but with your kind permission it possibly may be a mite towards advancing our knowledge of the Law of Storms, and especially to the fact that a typhoon *may* happen in May in the China Sea.

I remain, &c.,

W. SYMINGTON, *Master, ship "Northfleet."*

ROYAL NATIONAL LIFEBOAT INSTITUTION.

A meeting of this institution was held on Thursday, July 5th, at 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 F. Outram, Bart., Captain Richards, R.N., F.R.S., hydrographer of the Admiralty; W. H. Harton, Esq., Admiral Gordon, Captain de St. Croix, Alexander Beotefeur, Esq., Admiral Bullock, and Richard Lewis Esq., the secretary.

The minutes of the previous meeting having been read, the silver medal of the institution and £2 were voted to Patrick Mackell, chief boatman of coast-guard at Kinsale, in acknowledgment of his brave services in assisting to save five of the crew of the brigantine *Anna*, of Kinsale, which was wrecked during stormy weather on the 8th ult. It appeared that Mackell, when engaged in reaching a heavy line from the jibboom of the wreck, had to climb over very dangerous rocks, from which he was in the greatest danger of being swept away by the very heavy seas breaking over them. He was, however, with the assistance of some country people, ultimately successful in hauling ashore the master and four of the crew.

The thanks of the institution, inscribed on vellum, were likewise voted to Mr. Richard Reed, R.N., chief officer of coast-guard at Kinsale, and £1 each to his boat's crew of five men, for having previously put off in a boat, at considerable risk of life, and saved a woman and child from the same wreck. The coast guard boat was afterwards compelled to put out to sea, on account of the heavy surf breaking on the beach, and the crew had to watch their opportunity to reach the land.

A reward of £7 10s. was also granted to the crew of the *City of Manchester* lifeboat, belonging to the institution, stationed at Carmarthen Bay, for assisting to save, during a strong breeze and squally

weather, seven of the crew of the ship *Mary Roe*, of Quebec, which was stranded on the 17th ult., on the Cefn Sidan Sands.

A reward of £8 15s. was likewise granted to the crew of the Crossley lifeboat of the institution, stationed at Redcar, for going off in reply to signals for assistance, and saving two men from the yacht *Dagmar*, of Middlesboro', which had got among the rocks off Redcar, on the 17th ult. Other cases also received rewards.

During the past month the institution had sent new lifeboats to Skerries and Ballywalter, on the Irish coast. A contribution of £320 had been received by the institution as a first instalment in aid of the cost of the London Sunday School lifeboat. Wolverhampton had also sent to the institution a first contribution of £325 in aid of the cost of a lifeboat station, being collected in that town. A legacy of £100 had been left to the institution by John Graham Gilbert, Esq., of Yorkhill, and £100 by the late Richard Dalton, Esq., of Wigton, Cumberland. Reports were read from Captain Ward, R.N., the inspector, and Captain D. Robertson, R.N., the assistant inspector of lifeboats, on their recent visits to lifeboat stations of the institution on various parts of the coasts of the British isles. During the past two months the institution had made payments amounting to £,1400 on various lifeboat establishments. The proceedings then terminated.

MERELY A "CASUALTY,"—*but still a Fact.*

A certain firm possess'd an aged ship,—
 Years, twenty-three, she number'd from her slip;
 In other words, twenty-three years old,
 She was considered, with her days all told.
 But ships, unfortunately, will wear out,
 Like human kind, altho' they be as stout:
 What should be done with such a useless craft?
 One that was hardly fit to make a raft!
 She leak'd so much, she could not go to sea,
 And to repair her was absurdity!
 So, said the firm, "we'll sell her quietly."

'Tis fact, remarkable, that ships don't die
 In merchant's service often honestly!
 At home, ne'er broken up, but foreign graves
 They find:—and may by fools or knaves
 Become the victims of the winds and waves!
 This crazy craft, of thirteen hundred tons,
 Or near, was sold to some poor simpletons!
 And, yet, no simpletons were they—for soon
 Without repair, and like a picaroon,
 She's advertis'd, and for Australia sails,
 With various passengers, and their details!
 But mark what happens; learn to profit, too;
 And see the tricks John Bull is play'd; while you

Are certain, that your life's your own,
Which cannot be, in merchant's ships if thrown.
Away she sails, and everything is nice
While weather lasted fine : but in a trice,
The weather changes, and she's in a fix ;
The crazy craft now shows her naughty tricks !
Those leaks, which were so cleverly kept down,
Spring out afresh, and threaten all to drown !

Then hands, as usual, to the pumps are call'd ;
And passengers, also, are there install'd ;
For, 'twas as much as every soul could do,
To keep the ship from found'ring :—while her crew
In mutiny break out ;—(though they were few ;—)
Bitterly every one his fate did rue !
This wretched craft had not yet reached the Line,
When all this happens, yet all must combine
To keep her free ;—for now 'tis sink or swim !
And nearly were they lost ;—yet in sad trim,
Afloat they kept her, only till secur'd
In Rio's harbour, and she, too,—*was insur'd !*

Right glad, when there, was every one to land ;
But see the mischief upon every hand ;
Th' expence, which every passenger incurs ;
Besides th' inconvenience that occurs ;
From loss of time, delay, without redress,
Of course (from this) all suffer more or less !

At Rio, she gets what they call "patch'd up!"
Too true, instead of being broken up !
Having contriv'd to ship another crew,
(Discharg'd the former) this made up in lieu,
For Auckland she has sail'd, once more to dare
And brave old Neptune, now her ribs to spare.

Thus it appears the Monarch of the Seas
May be unfit, and yet may sail at ease ;
And drown all passengers thro' thick and thin,
No matter how ! while one secures the tin.

And, is a ship, in this condition found,
Allow'd to go to sea as safe and sound ;
As when seaworthy, she may be declared,
Although for sea, entirely unprepar'd ?
Can an old ship be sold, and pass for new,
To sink at sea,—founder with all her crew ?

The answer's plain ! No one himself need flatter,
That the country cares about the matter !
Now, it may appear a very easy task
To sail a ship ;—perhaps, too, one might ask,
Why all this wreck ? and why should ships be lost ?
Answer'd at once ; " Insur'd to their full cost."
Perhaps above it ! Let the game go on,
'Tis in the British Constitution !

Let ships be lost, by all means, if they will,
 As long as they're insur'd; the game is still
 Alive! for why? you do not touch the cause.
 But put a stop to the Insurance laws;—
 And watch the effect:—then it will soon appear
 To all concern'd, and very soon be clear,
 That ships are better sail'd,—are better found,—
 Are better cared for, and are far more sound!
 Than those, which now, are navigating seas,
 Back'd by insurance, lost whene'er they please.

Or, if on insurance laws we still must count,
 Prevent insurance to the full amount!

Nautical Notices.

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

PARTICULARS OF LIGHTS RECENTLY ESTABLISHED.

(Continued from page 385.)

All bearings are magnetic.

Name.	Place.	Position.	F. or R.	Ht. in Feet	Dist seen Mls.	[Remarks, &c. Bearings Magnetic.]
34. Prince Edward Island, St. Lawrence	North Point	47° 37' N., 63° 50' W.	F.	80	14	Recently Est.
35. Matapan Cape	.....	.....	..	..	..	Reported aboal off. (a.)
36. Dungeness, England, S.C.	.....	.....	..	..	..	(aa.)
Hook of Holland	.....	.....	F.	19	6	(ab.)
Mile in Firth of Clyde	.....	.....	..	..	..	(ac.)
37. Port Curtis, Australia, East coast	Gatcombe Head	.....	F.	50	..	(b.)
37. FitzRoy River, Australia	Upper Flats Lightvessel	.....	..	..	..	(c.)
38. Hakodadi Bay, Samboanga I., Sulu Sea	Basilian Channel	41° 47-8' N. 140° 44-6' E.	F.	21	5	Est. after October, 1865. (d.)
39. Bay of Biscay, France	Plateau de Roche-bon Lightvessel	46° 54' N. 123° 4' E. 46° 10' N. 9° 20-8' W.	F. F. F.	46 33 10	10	Est. 15th March, 1866. Red harbour light Est. 15th September, 1866. (e.)
40. Port de Sur or Tyne, Syria	.....	35° 17' N. 36° 14-8' E.	F.	56	5	Est. 15th July, 1866. Two white vertical lights.
Port de Balda or Sidon	.....	33° 34-3' N. 36° 21-6' E.	F.	69	5	Est. 15th July, 1866. Two red vertical lights.
Cape Kouril, Black Sea	.....	41° 53-5' N. 28° 4-3' E.	F.	174	15	Est. 15th July, 1866. A fixed white, flashing every two seconds.
Cape Kalacria or Kallakra	.....	43° 21-5' N. 28° 30-2' E.	R.	164	16	Est. 15th July, 1866. White, greatest brilliancy every <i>minutes</i> .
41. Cape Race & Cape Pine	Newfoundland, S.C.	.....	..	..	..	(f.) In reference to Nos. 6 and 28.

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

(a.) 35.—With reference to notice to mariners, No. 2, issued from this office on the 9th of January, 1866, relative to a shoal with 12 feet water on it, reported by Mr. George Yeoman, master of the English barque *Vigilia*, and said to lie in about lat. $36^{\circ} 3' 30''$ N., long. $22^{\circ} 33'$ E., with Cape Matapan bearing N. $\frac{1}{2}$ E., and Ovo islet south of Cerigo E. $\frac{1}{4}$ S.:

Commander Lindsey Brine, of H.M. steam sloop *Racer*, reports that after five days' search in April last, with 100 fathoms, not only in the above position, but in every direction near, and around it for a space of about 4 miles, no bottom was obtained; nor was the slightest indication of discoloured, broken, or shallow water observed. From inquiries made at Cerigo, nothing was known of the shoal, and it is therefore deemed conclusive that the reported shoal does not exist.

The position of the 8-fathom patch (marked doubtful) about S.W., distant 10 miles from Cape Matapan, having also been examined, without success, the patch has been removed from the Admiralty charts.

(aa.) 36.—The corporation of the Trinity House London, has given notice that on or about the 1st day of September, 1866, in order to mark the anchoring ground on either side of Dungeness, a portion of the light will be coloured *red*, which will be seen when on—or the shore side of—the bearings of S.W.b.W. $\frac{1}{4}$ W. and East, respectively.

(ab.) 36.—On the 1st day of May, 1836, a light was exhibited from a lighthouse recently erected at the Hook of Holland, on the *north* side of entrance to the river Maas or Meuse, passage of Brielle.

(ac.) 36.—*Measured Mile in Frith of Clyde*.—Notice is hereby given, that beacons to indicate the length of a nautical mile, (6,080 feet,) for testing the speed of steam vessels, have been erected on the eastern shore of the Frith of Clyde.

Each beacon consists of a single pole 45 feet high, with two arms 10 feet long, forming a broad angle 15 feet from the base, the whole being painted white.

The two northern beacons are erected near Skelmorlie pier; the outer one being close to the high water shore on the south side, and from it the inner one (in a recess of the cliff) is 83 yards distant, bearing S.E.b.E. $\frac{1}{4}$ E.

The two southern beacons stand on level ground near Skelmorlie castle; the inner one being 100 yards from the outer one, in a S.E.b.E. $\frac{1}{4}$ E. direction.

The courses parallel with the measured mile—at right angles to the line of transit of the beacons—are N.N.E. $\frac{1}{4}$ E. and S.S.W. $\frac{1}{4}$ W.; the shore may be approached to the distance of a third of a mile.

(b.) 37.—The government of Queensland has given notice, that a *temporary* light, 50 feet above the sea, has recently been established on that part of Gatcombe head north-west of the Oyster rock, entrance to Port Curtis.

Vessels entering Port Curtis at night by the North channel, should bring the light to bear about S.W.b.W. $\frac{1}{4}$ W., being careful to keep it well open of Settlement point, in order to avoid the rocks extending from that point.

(c.) 37.—A lightvessel has also been moored head and stern, in the position of the large black buoy, at the crossing place at the Upper flats in Fitzroy river. The vessel shows a *red* light at the mast-head, and by day and night the following tidal signals are exhibited:—

Signal by Day.	Where shown.	Depth of Water.	Signal by Night.	Where shown.
		ft. in.		
Ball	North yard-arm ...	6 0	White light	North side
Ball	South yard-arm ...	6 6		
Flag	North yard-arm ...	7 0	White light	South side
Flag	South yard-arm ...	7 6		
Ball	N. and S. yard-arms	8 0	Red light..	North side
Flag	N. and S. yard-arms	8 6	Red light..	South side
Two balls ...	North yard-arm ...	9 0	Green light	North side
Two balls ...	South yard-arm ...	9 6	Green light	South side
Ball above flag	North yard-arm ...	10 0	White light	North side and S. side
Ball above flag	South yard-arm ...	10 6	Red light..	North side and S. side
Flag above ball	North yard-arm ...	11 0	White light	N. side and red S. side
Flag above ball	South yard-arm ...	11 6	Red light..	N. side and white S. side
Ball above flag	North, ball S. ditto.	12 0	White light	N. side and green S. side
Ball above flag	South, ball N. ditto.	12 6	Green light	N. side and white S. side
Flag above ball	North, ball S. ditto.	13 0	Red light..	N. side and green S. side
Flag above ball	South, ball N. ditto.	13 6	Green light	N. side and red S. side
Two balls	North, flag S. ditto.	14 0	Green light	N. side and also S. side
Two balls	South, flag N. ditto.	14 6		
		& upw.		

Variation at Port Curtis, 8° 30' East in 1866.

(d.) 38.—The vessel has one mast, carries a red ball during the day, and is moored in 6 fathoms water at the extremity of the bank, extending in a northerly direction from the peninsula of Hakodadi.

(e.) 39.—The Minister of Public Works in France has given notice, that on and after the 15th day of September, 1866, the lightvessel, which has been moored east of the Plateau de Roche-bonne—off the west coast of France—will exhibit two *fixed* white lights. The vessel is painted red, with two masts surmounted by skeleton balls; and moored in 26 fathoms.

During foggy weather a bell will be sounded quickly for the space of a minute, with an interval of three minutes; but in the event of a vessel passing near the floating light, the ringing will be continued without interruption. It is contemplated to substitute for this bell, a trumpet to be sounded by compressed air, which would be heard a much greater distance.

(f.) 41.—The fixed light at Cape Race will be altered to a *revolving* white light, attaining its greatest brilliancy every *half minute*.

The revolving light at Cape Pine will be altered to a *fixed* white light.

LIST OF LIGHTHOUSES, LIGHTVESSELS, AND LIGHTED BEACONS,—
Discontinued or destroyed on the Southern coast, but which have been re-established by the Lighthouse Board up to the 1st May, 1866:—

*Treasury Department, Office of the Lighthouse Board,
Washington, May 2nd, 1866.*

Sir,—I have the honour to state that at the beginning of the rebellion, January 1st, 1861, there were in operation on the Atlantic, and Gulf Coasts of the United States, 367 lighthouses, lightvessels, and lighted beacons. Of this number 177 were within the limits of the seceding States, and by the 1st of June following were all either ex-

tinguished with more or less damage to buildings and apparatus, or were totally destroyed. The only exceptions were the light stations on the Eastern shore of Virginia at Fort Monroe, and Alexandria, Va., and at Carysport Reef, Dry Bank, Land Key, Key West, and Dry Tortugas in Florida.

By act of Congress, approved July 2nd, 1864, the sum of 100,000 dollars was appropriated "to enable the Lighthouse Board to re-establish lights and other aids to navigation which have been discontinued or destroyed on the Southern coast."

The board having thus placed at its disposal a special fund, though small in comparison with the work to be accomplished, did what it could to carry into effect the wishes of Congress. The object of this paper is to show how this has been done.

As rapidly as our armed forces advanced in "repossessing the forts, arsenals, and other public property of the United States," the lighthouse establishment kept pace. Whenever the military authorities could give assurance that the work would be protected, it was begun and pushed forward as rapidly as possible.

The failure to appropriate for the lighthouse service at the second session of the Thirty-eighth Congress, somewhat retarded the work, but the following list shows the great progress made up to the 1st May, 1866:—

To the Editor of the Nautical Magazine.

In Virginia—Cape Henry lighthouse; Craney Island lighthouse; Naval Hospital lighthouse; White Shoals lighthouse; Point of Shoals lighthouse; Deepwater Shoals lighthouse; Jordan's Point lighthouse; Back River lighthouse; New Point Comfort lighthouse; Wolf Trap lightvessel; Stingray Point lighthouse; Upper Cedar Point lightvessel; Lower Cedar Point lightvessel; Smith's Point lightvessel.

In North Carolina—Cape Hatteras lighthouse; Cape Hatteras beacon; Ocracoke lighthouse; N. W. Point Royal Shoal lighthouse; Long Shoal lightvessel; Roanoke Marshes lighthouse; Croatan lighthouse; Wade's Point lighthouse; Cape Lookout lighthouse; Federal Point lighthouse; Frying Pan Shoals lightvessel; Cape Fear lighthouse, Oak Island lighthouse; Price's Creek lighthouse; Orton's Point lighthouse; Campbells's Island lighthouse.

South Carolina—Rattlesnake Shoals lightvessel; Sullivan's Island lighthouse; Fort Sumter lighthouse; Castle Pinckney lighthouse; Battery Beacon lighthouse; Martin's Industry lighthouse.

Georgia—Tybee beacon; Cockspur Island beacon; Oyster Beds beacon; Fig Island lighthouse; The Bay, Savannah; Amelia Island beacon.

Florida—St. John's river beacon; Jupiter Inlet lighthouse (not quite ready); Cape Florida lighthouse; Pensacola lighthouse and beacons.

Alabama—Sand Island lighthouse and beacons; Mobile lighthouse.

Mississippi—Round Island lighthouse; Ship Island lighthouse; Merrill's Shell Bank lighthouse; St. Joseph's Island lighthouse.

Louisiana—West Rigolets lighthouse; Port Pontchartrain lighthouse; New Canal lighthouse; Chandeleur lighthouse; Pass l'Outre lighthouse; South Pass lighthouse; Southwest Pass lighthouse; Head of Passes lighthouse; Barataria Bay lighthouse; Timballier lighthouse; Ship Shoal lighthouse; S. W. Reef lighthouse; Shell Keys lighthouse.

Texas—Sabine Pass lighthouse; Bolivar Point lighthouse; Padre Island lighthouse; Point Isabel lighthouse.

Sixty-nine stations.

There yet remain ninety-eight stations to be relighted, but many of them are only of slight importance to present commerce. The rule observed by the board, since the suppression of the rebellion, is to relight the stations in the order of their importance, as commerce seemed to demand.

By act of Congress approved April 7th, 1866, another appropriation of 100,000 dollars, to continue these operations, was made, and the bill now before Congress contains an estimate of £200,000, for the same object, for the fiscal year commencing July 1st, 1866.

With this amount of money the board hopes to be able to restore every one of the lights now unlighted. The high prices of materials and labour may interfere, and it will then become necessary to ask for a further appropriation.

Of course the amounts stated will not serve to restore each of the light stations to its original condition, and the board has not attempted this, but simply to put up such structures as would admit of the exhibition of lights of the same power and characteristics as formerly.

For instance, to restore the first-order light at Sand Island to the condition in which it was before the war, would have required at least 80,000 dollars, which would have absorbed four-fifths of the amount appropriated. The board consequently approved a cheaper and less enduring tower at a small proportion of the 80,000 dollars, but still sufficient for a first-order apparatus for a few years.

In other words, the board has endeavoured to make the money appropriated go as far as possible.

Very respectfully,

W. H. SHUBRICK, *Chairman.*

Hon Hugh McCulloch, Secretary of the Treasury.

BALLASTING BOATS.

Some months ago there occurred a lamentable boat accident in the River Thames, when no less than ten promising youths, cadets on board the training-ship, *Worcester*, were drowned. The boat was under sail at the time, and was said to be a "good and safe boat," but she had no ballast.

We do not allude to this melancholy accident with a wish to impute blame to any person in charge of the cadets on board the boat in

question, or to awaken any sad recollections. Judging, however, from the evidence then given at the coroner's inquest it would appear that, whilst the palpable cause of this accident was the want of ballast in the boat, most mistaken notions, even amongst practical seamen, exist on the subject; and that from such mistaken views future accidents may be expected to occur.

At the inquest three witnesses stated that they did not approve of carrying ballast in boats. One of these witnesses was the captain of the ship, another was her boatswain, and the third was a Greenwich waterman. They were all, therefore practical, men. The captain, indeed, went so far as to say that "many lives had been lost by placing ballast in boats." As, on the other hand, we are persuaded that many more lives had been lost by the upsetting of boats under sail, owing to their having no ballast to counteract the pressure of the wind on their sails, or to their being insufficiently ballasted, it may be useful to devote some consideration to the subject.

The causes of upsetting may be thus plainly described. Boats, in common with other floating bodies, have a central axis, or centre of motion, round which they have a tendency to revolve. This centre will be higher or lower with reference to the general mass of the body or structure, according to its shape and to the distribution of weight within it; whilst the stability or resistance to upsetting will be great or little according to the relative positions of this central axis and the centre of weight called the centre of gravity. Thus the lower the centre of gravity is below the central axis the greater is the stability. When the two exactly correspond, there is no stability, but a tendency to revolve round a common central axis; and when the centre of gravity is carried above the central axis what is called in mechanics an unstable equilibrium is produced, or, in plain English, the body is top heavy, and must upset. The first of these axioms may be illustrated by the common use of metal keels, or of ballast stowed in the lowest part within a vessel or a boat. The second, by an empty cask which has no stability, but a tendency to revolve round the common centre; whilst the third has been too often fatally illustrated by persons climbing the masts of small boats, and thus upsetting them.

It follows, therefore, that the addition of any weight placed in a boat or other vessel, as ballast, must add to her stability, and thereby make her less likely to upset. But, no doubt, all this would be admitted by the three witnesses above referred to, and their disapproval of ballast in boats must have arisen solely from the fact of its causing a boat to sink after upsetting, instead of still floating, although entirely immersed; and their choice therefore must have been, of what they thought a lesser danger in preference to a greater. If, however, we can make it clear that, by the selection of a suitable material for ballast, both dangers may be avoided, we shall render a service—and this can be readily done.

Now it so happens that a most mistaken notion regarding ballast very commonly exists, many persons supposing it to be necessary that it should be composed of lead, iron, stone, or some other substance

heavier than water. There could not, however, be a greater mistake, since equal weights of any substance afford similar ballast; the only difference being that the heavier the substance the more concentrated it will be, and *vice versa*; so that in cargo vessels, in which the whole of the interior space is of much value, the heavier description of ballast is more suitable, because the required amount will occupy less space. Indeed, as any ordinary decked cargo-vessel would sink if filled with water, whether ballasted with metal or not, it would be of no advantage in such vessels to use a lighter description of ballast. The case as regards boats and small pleasure vessels is, however, quite different; and for a long period it has been the custom in the ships of the royal navy to ballast their boats with small casks, or barrels of water, which would float of themselves if immersed, and would therefore have no tendency to sink a swamped boat. But if a boat is ballasted with any substance lighter than water, should she get swamped or upset, the whole of the surplus buoyancy of the material would, if it were properly secured, be transferred to the boat herself, and therefore help to float her. Accordingly, in the lifeboats of the National Life-Boat Institution, nearly half the ballast is composed of cork in water-tight boxes stowed under the deck, which is also water-tight. As long, therefore, as the boat is tight and sound these boxes of cork act solely as ballast, but should she get stove in below the deck, the surplus buoyancy of the cork would then prevent her sinking too deep to be manageable in a high sea.

As, however, this would be too expensive a description of ballast for ordinary boats, and from its great lightness would take up too much room, a more suitable material would be wood, and a light or heavy description of wood could be adopted as might in each case be convenient. Thus fir wood has about half the specific gravity of water, weighing about half as much, bulk for bulk, and therefore every cwt. of fir ballast in a boat would impart about 56 lbs. of surplus buoyancy to her. In those cases, however, where a sufficient quantity of fir ballast would occupy so much space in a boat as to be inconvenient, a heavier description of wood might be employed. The most convenient shape in which to employ it would perhaps be in two balks, or logs, placed side by side, fore and aft, above the keelson, and lashed securely to the bottom of the boat; but the same rule might not apply to all boats, as the position which would be convenient in one might be inconvenient in another.

We strongly recommend to all owners of sailing-boats, and especially of open pleasure boats, the serious consideration of the subject, believing, as we do, that the general adoption of wooden ballast would be the means of preventing many accidents, and of saving many human lives.

THE COLLISION BETWEEN H.M.S. "AMAZON" AND THE
"OSPREY."

At the court-martial on Commander J. E. Hunter and the officers and crew of H.M.'s late ship *Amazon*, which was lost on the morning of the 10th July, by coming into collision with the *Osprey*, on board the flagship *Victory* in Portsmouth harbour. Captain Harris, R.N., represented the Board of Trade; and Mr. Pope Hennessey was in attendance to watch the case for the owners of the *Osprey*. Commander Hunter, in his defence, expressed a hope that the court had found from the evidence that he and his officers and men did their duty, and used their utmost exertions to save the lives of those on board the *Osprey*, to keep the *Amazon* afloat, and afterwards to save the lives of those left in his charge, with the limited means at his command. Referring to the statement of the chief mate of the *Osprey* that he begged the crew of the *Amazon* to assist in saving the lives of those on board the *Osprey*, and that they took no notice of him, he said he thought the mate must have been mistaken, owing to the confused state in which he must have been at the time, as he could bring forward the men who were throwing ropes over with him, and while he was calling out "to bend the ropes on to the women," and seeing no one left in the vessel to do as he wished, he was on the point of going down with some of his men when the *Osprey* sank. Upon the cause of the collision he could say nothing, except express his opinion of the officer of the watch, Mr. Loveridge. He had found him most attentive and zealous in all his duties, especially in his watch. He spoke in high terms of the conduct of the officers and crew on the occasion.

Mr. Loveridge urged that the accident was not due to any want of care or precaution on his part. When standing on the starboard side of the bridge he saw first of all a single white light a point and a half or two points on his starboard bow. From the position in which he stood, with fore and aft sails set, he could not have seen a vessel on his port bow, and therefore it was hardly possible the vessel he saw could have seen his red light, and it was proved that the light seen was on his starboard bow, and not on his port bow. Knowing this, and not knowing at the moment what the light was, or whether it was a ship's light at all, and drawing on, as they were, towards the Start Point, he had to consider what to do. Seeing a single white light on his starboard bow, he could not well continue his course because the light he saw might be the Start, which would have shown them to be so much out of their reckoning as to make even a momentary approach towards it unadvisable, or it might have been a fishing boat nearer than it appeared, or it might have been a steamer steering directly for his starboard bow, in which case it was his business to keep out of her way, and hers to continue her course. He could not port his helm because it might still be the Start Point or a vessel which had already crossed ahead of the *Amazon* from port to starboard.

Under these circumstances he took the precautionary measures of at

once bringing the doubtful light broad on the bow on which he first saw it. In a minute and a half or two minutes he with difficulty, with the aid of his glasses, made out the *Osprey's* red light. He saw nothing to lead him to suppose that the *Osprey* was porting her helm. He thought that if he shifted his helm he should only confuse the person in charge of the approaching steamer, who would, he considered, be probably minding his starboard helm, in order to pass astern of him. For this reason he kept his course steadily with the utmost care, and without any movement to the other ship. He expressed his confidence that should the court decide he had committed errors of judgment it would also decide that they had been errors of over caution. Evidence was then called to disprove the evidence given on the previous day by the chief mate of the *Osprey* with regard to the efforts made to save the persons on board the *Osprey*. Captain Alexander having spoken in high terms of Mr. Loveridge, the case for the defence was closed.

The court was then cleared, and after three hours' deliberation the public were re-admitted, and the "finding" was read by the officiating Deputy-Judge Advocate as follows:—"The court are of opinion that her Majesty's late ship *Amazon* was lost on the morning of the 10th July by coming into collision with the late steamship *Osprey*. That the collision was occasioned by a grave error of judgment upon the part of Sub-Lieutenant Alfred Churchill Loveridge, the officer of the watch, in putting the helm of the *Amazon* to starboard instead of to port when first sighting the light of the late ship *Osprey*, in contravention of the regulations for preventing collisions at sea. No blame is attributable to Commander Hunter and the other officers and crew of the said ship. That the efforts made to save her Majesty's said ship after the collision, as well as the lives of the crews and passengers of both ships, reflect the highest credit on Commander Hunter and the officers and crew of H.M.S. *Amazon*. The court adjudge Sub-Lieutenant A. C. Loveridge to be dismissed her Majesty's service; but on account of the high character given him for zeal in the service, they recommend him to the favourable consideration of the Lords Commissioners of the Admiralty; and the said Mr. A. Loveridge is to be sentenced accordingly. The court adjudge Commander Hunter and the rest of the officers and crew of her Majesty's ship *Amazon* to be fully acquitted of all blame." The president (Rear-Admiral Wellesley), addressing Commander Hunter, said:—"It is now my pleasing duty to return your sword, as well as those of the other officers of the *Amazon*; and in doing so I have to express the gratification with which the court received the testimony borne to the bright example set by yourself to the officers and ship's company, and which was so well followed by them on the occasion after the collision occurred.

The proceedings then terminated.

THE PROPOSED TUNNEL BETWEEN ENGLAND AND FRANCE.

The first serious attempt to grapple with the difficulties attendant on the carrying out of such a work was made by M. A. Thorné De Gamond, who in 1857 presented to the Emperor of the French an elaborate study on the whole question, and proposed the construction of a tunnel from Cape Grisnez, accompanying his report with plans and detailed drawings of the proposed work, and geological charts of the bed of the Channel. M. Gamond surveyed not less than six routes across the Channel. One was from Dungeness to Boulogne, a second from Dungeness to Cape Grisnez, a third and fourth from Dover to Cape Grisnez, a fifth from Ness Corner to Calais, and a sixth from Ness Corner to Cape Blancnez. After very mature considerations, and for reasons which it is not necessary to discuss, mainly of a geological character, M. Gamond selected a spot between Folkestone and Dover, at a place called Eastware, as the point of departure from the English coast, and Cape Grisnez as the terminus on the French side. He proposed the construction of a tunnel arched in stone, the external arc of which was $8\frac{1}{2}$ metres, or 29 ft. 3 in. in radius, and 7 metres, or 22 ft. 9 in. in height. In the lower part of the work he proposed a conduit for the drainage of the tunnel, and above this a solid road to be constructed for two lines of railway.

On each side of the railway was a raised footpath for pedestrians, for those who were willing to make the voyage from Dover to Calais on foot.

It was suggested that a second tunnel might be superimposed on the first, so that there might be a division of the goods and passenger traffic, which it was calculated would be so great as to tax to the uttermost the capabilities of a single roadway; but, as the cost of the work would be very considerably enhanced, M. Gamond very considerably proposed to leave to posterity the work of providing any additional accommodation which our descendants might require.

On the English side the tunnel would be by a submarine approach of about $3\frac{1}{2}$ miles in length, passing along St. Mary's, Dover, and descending to Eastware, at a spot where it passed under the present railway between Dover and Folkestone. At this point it would join the great submarine tunnel in the midst of a colossal open tower forming the frontier station. On the French side there would be a similar approach of about five miles in length, starting from Rouges Barnes, at the foot of Bazinghen, near Marquise, and descending towards Cape Grisnez, where the great tunnel would be approached in the same manner as on the opposite coast. The tunnel would have branches connecting it, of course, with the Northern of France Railway, going in one direction towards Boulogne and Amiens, and in the other to the Calais portion of the Northern Railway. At Grisnez, communication would be provided with the tunnel by a descent through a tower of 175 ft. 6 in. in height, or rather in depth, and at Eastware by one of a little less than 100 ft. deep. The section of these towers presented in

its largest axis a length of 333 ft., and in its smaller a diameter of 150 ft. These towers would serve not merely as approaches to the tunnel when completed, but as points by which the excavated material could be raised during the process of construction, and for ventilating shafts.

About midway between the two coasts, and on a shoal or bank known as Varne, would be established another large tower, connected with the tunnel at a depth below the surface of the water of 284 ft. This tower would be a station in mid-channel, communicating with the tunnel by an easy spiral staircase. The tower would be surmounted by an observatory and a large reflecting light. The interior diameter of this colossal tower was at first proposed to be 351 ft. Around the outer part of the tower would be built up, by casting earth into the sea, a large island, enclosing docks, and supporting extensive warehouses and workshops. In plan the island was in the form of a star, and its whole area, as proposed, was 17 hectares, of which seven was enclosed as a port or dock, having a northern and southern entrance through openings left in the quay walls. Great importance was attached by M. Gamond to the construction of this port, as it would give facilities for loading and unloading vessels running between England and France and the various countries of the world. The able engineer expressed doubts as to the sufficiency of one of the communicating towers as originally proposed, and suggested that it should be enlarged to an ellipse, having its largest diameter 200, and its shortest 100 metres in length, and if this should be adopted it would be impossible to have the spiral ascent of sufficiently easy gradients to admit of the railway carriages and trucks passing up and down between the quays of the dock to the tunnel below. The island to be built up in the sea was made up of thirteen "ilots," or small islands of strata rising one above the other until the surface was reached; the lower one containing 1,069,320 cubic metres of earth, and the upper one 57,600 cubic metres. The inclination or shape of the whole work formed an angle of 35°. The tunnel would pass below the great island at a depth of 22 metres, or 71 ft. 6 in. During the process of construction twelve shafts would be provided between the land on either side. The traveller descending the immense tower from l'Etoile de Varne, or the station of the submarine railway, would find himself in a region of perpetual day, for thousands of jets of gas spread over the deep vault, or numerous electric lights, would drive darkness and gloom out of the huge tunnel.

It is scarcely possible to form an adequate idea of the enormous character of the works proposed by this eminent engineer. The island and docks to be constructed midway in the Channel would require more than 5,000,000 cubic metres of earth to be thrown into the sea. The intermediate shafts would absorb something like 10,000,000 of cubic metres, and the quantity of earth to be excavated in the submarine tunnel of the dimensions already quoted would scarcely be less than the total of the two quantities already given. Add to these, however, something like ten miles of tunnel, on the two sides of the

Channel, required for communicating on the land side, and some idea will be formed of the magnitude of the undertaking.

A bolder flight of genius or imagination was perhaps never made than that of the tower in the midst of the Channel of 666 ft. in diameter—a funnel wide enough to lower into the depths below the *Great Eastern* steamship, and much taller than the Monument. The geological character of the formation was carefully examined by M. Gamond, and declared to be most favourable for the construction of the work. The estimated cost of the whole work was 170,000,000 of francs, or rather less than £7,000,000; of this amount the construction of the tunnel itself would absorb 112,000,000 francs, the remainder being required for the approaches, stations, and docks. The whole work would be completed in six years.

We are by no means sanguine that the plan of M. Gamond will ever be carried out; but certainly the plan of converting our island into a peninsula by means of a submarine isthmus is one within the range of the engineering science and mechanical appliances of the present day. The grave and practical question, "Will it pay?" involves the consideration of other and totally different questions.—*Railway News*.

New Books.

THE HARMONIES OF NATURE; OR, THE UNITY OF CREATION. *By Dr G. Hartwig: Author of the Sea and its Living Wonders.* Longman, London.

Essentially dealing with Nature in all her numerous and various branches, Dr. Hartwig has followed up his former success in producing another volume, which captivates the reader in every page. It is impossible to open it without finding (anywhere) information concerning the habits of the innumerable denizens of our globe, along with interesting facts, not only concerning them, but all relating to them, in the whole universe, including primarily the character and component parts of the globe they inhabit, viz., our earth,—and when this research includes the whole range of creation,—the number and variety of subjects treated are downright appalling. From the Starry Heavens Dr. Hartwig follows with Heat and Light, the Atmospheric Ocean, (a huge field for observation,) the majesty of the Ocean Sea, (another still higher field for discussion,) then physical nature as shown in plants, all the various inhabitants of the sea and land,—reptiles, birds, mammalia, and terminating in man, Dr. Hartwig has exhausted resources which, in fact, are appalling to contemplate,—but with a masterly hand in all that concerns their natural history.

The general reader has here an abundant store of information of which he can never tire, and the student of natural history a repertory of knowledge which he will treasure up for consultation with delight, and congratulate himself that the author has compressed so much information that he desires within so small a compass. For our part we find it difficult to separate from a work of so much merit, and shall not hesitate to glean a few of Dr. Hartwig's facts for one or two of our future numbers. But we will not associate that inhar-

monious frontispiece which he has adopted (unfortunately, in our opinion) in illustration of the "*Harmonies of Nature*,"—but which, although not exactly in correspondence with the title, by no means detracts from the merits of the work. For well we know—

Nature on Nature wars indeed for prey,
The Victor lives, yet falls another day;
And thus that equilibrium is maintained,
Which the Creator's wisdom has ordained.

or, as Dr. Hartwig, has it, the "harmonies" are maintained,—

Yes, throughout nature animate and still,
Each plays the part that each is meant to fill.—*Inedit*

MISSION LIFE IN THE ISLANDS OF THE PACIFIC. *Being a Narrative of the Life and Labours of the Rev. A. Buzacott, Missionary of Rarotonga, &c.* Snow and Co.

We must briefly make an extract or two from this work, for our space is limited. The missionary says, "Many of the natives were wont to congregate together in the cool of the day and chant over the lessons they had learnt at school, just as they had been wont to chant their heathen songs. Some even imagined them to be the *forms of prayer* to be repeated in times of danger. In illustration, an amusing story is told of an aged couple, who resided near the mission house, and who were greatly alarmed by the evening visit of a cat belonging to the native teacher. The cat's peculiar mew drew their attention to the door of their dwelling, and being pitch dark, they saw what they described as being two balls of fire. The wife began to remonstrate with her husband for having anything to do with the new religion: for without her consent and contrary to her wishes he had attended the daily instruction. 'See (said she) what your conduct has brought upon us! Here is this monster come from the teacher to visit us. Alas, we shall be destroyed!' Poor Puss, hearing the sound of muffled conversation, became frightened, too, and began to send forth some of her most terrific cries. 'Oh, Tiaki, (exclaimed the wife,) say the prayers you have learned.' Both immediately dropped on their knees, and Tiaki began most earnestly to cry,—'B a, ba; b e, be; b i, bi; b o, bo' The cat flew home in terror at such unwonted supplications, leaving the aged couple very grateful for their deliverance, and profoundly impressed with the efficacy of the new cabalistic sounds."

The following is no less interesting than truly characteristic of nature herself:—

"One of the goddesses brought forth a son. Two gods claimed the paternity of the child, and so equally balanced were their claims that the child was adjudged to be cut in two, and half given to each. The god who received the head and shoulders for his portion threw it into the sky, and it became the sun; the other god, not knowing what to do with his part, threw it away into the bush. He was soon after visited by the sun-maker, who inquired what he had done with his portion: he said, that he had thrown it away. 'Give it to me,' said the sun-maker; and on receiving it he threw it also into the Heavens, and it became the moon. In the horned stage of the moon, the children were told by their parents that the horns were the legs of the lad, and when full the dark

places were pointed out as the marks of decomposition which had taken place while it lay in the bush." Again,

"Eclipses excited their terror and dismay. Tangaroa, their principal god, was angry for not being properly fed, and the sun fell a prey to his voracious jaws. On the first occasion of a total eclipse subsequent to the arrival of the missionaries, many of them came running in great excitement to the mission-house. They did not expect to see any more of Tangaroa's work now that idolatry was done away with: but to their dismay there was Tangaroa at his old trick in the very act of devouring the sun. Mr. Buzacott was called out to witness the destruction. The eclipse had just commenced. A small part of the sun's disc appeared gone. 'Look, (said they,) that is the first bite; and he will not be content till he has swallowed the whole. The question was put, If the sun had been eaten before by Tangaroa, how did they manage to get it back again? They replied, 'By giving him so much food as to make him sick, and cause him to vomit back the sun.' Perceiving that Mr. Buzacott was much amused by this account, they earnestly inquired if he could solve the mystery? They were surprised to hear that it was caused by the moon. A simple illustration was given them, by placing the heads of three of them of equal height in a row, to represent the earth, moon, and the sun. On moving the middle one to represent the moon to and fro, their fears ended in a good hearty laugh at their ignorance. One of the old priests was so wonderstruck at the superior knowledge of the missionary, that he gravely asked if he had ever been up above the moon, and there seen and watched her during the operation?"

CHARTS AND BOOKS PUBLISHED BY THE HYDROGRAPHIC OFFICE,
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EDWARD DUNSTERVILLE, *Commander, R.N.*
Admiralty, Hydrographic Office, 20th July, 1866.

TO CORRESPONDENTS.

We hope to hear again from the Master of the *Northfleet*.
The Visit to the Wolf Lighthouse in our next.

THE
NAUTICAL MAGAZINE

AND

Naval Chronicle.

SEPTEMBER, 1866.

A VISIT TO THE WOLF ROCK LIGHTHOUSE,—*Cornwall.*

To the people of a maritime nation like Great Britain, anything so intimately connected with the sea, and so important to navigation, as our lighthouses are, must possess considerable interest. They may be truly said to be the "Towers along the steep," that Britannia *does* stand in need of: and which in peace or war, whether to the "iron clad" of six thousand tons burden, or the hardy little fishing smack, extend alike a friendly warning, at all times and in all weathers.

Probably no building of this nature round our coasts, is so generally known, or has excited such universal interest, as the Eddystone, which, owing to the tragic fate of the two first houses erected there, and also to the fact of its being the first lighthouse built on a detached rock, has become quite a household gem among us.

It would almost seem as if here and there rocks had been placed just near enough to the surface to prevent a ship passing clear over them; so low in the water as to make it very difficult to build on them; and sufficiently far from the shore to require a beacon of their own; in order to call forth all our ingenuity and perseverance in overcoming such dangers to navigation.

Among the first of such dangers we may fairly reckon the Wolf Rock: which, situated off the Land's End, is just in the track of all vessels bound from the English Channel or France to the St. George's Channel or Ireland; and lying in what would otherwise be a broad and safe passage between the Scilly Islands and Land's End, is passed yearly by an innumerable number of vessels, and has proved fatal to more than can ever be known.

In the year 1861, it was wisely determined to build on this rock a lighthouse, which should take the place of an iron beacon, erected there twenty-four years previously; and a design was therefore made by the late Mr. James Walker, then engineer to the honourable corporation of the Trinity board, for this purpose.

It was resolved that the Wolf Rock Lighthouse should be both larger in diameter and higher than its sister on the Eddystone; and that the stones should be fitted into each other in a different way. The method of doing this may be described as follows.

The lighthouse on the Wolf is to be 134 feet from its base to the vane; and 110 feet from its base to the top of the masonry. The form of it is of course to be circular, the diameter at the foundation being 42 feet, tapering off to 25 at the flooring where the entrance door is to be, and 17 feet at its smallest part, which will be about the 6th chamber. The stones are to be fitted into each other by what are technically termed, male and female joggles; and the peculiar construction of the edifice may be described as having the nature of a corkscrew. The edges of the stones in each succeeding course being two feet on one side of those immediately below; and this plan continued all the way up. The stones are fastened together by a cement, prepared from cement stone, which is found in the vicinity of Harwich, and underlying the Isle of Sheppy. This stone is burnt in a kiln to a calcined state, then pounded to a powder, and packed in casks. When about to be used, it is mixed with an equal quantity of crushed quartz sand, and enough water (either salt or fresh) to moisten it well. It is then ready for use, and becomes, within fifteen or sixteen minutes, or much less if in a more caustic condition, as firmly set as the stone itself. In addition to the cement, the stones are fastened together, as high up as the twentieth course or entrance door, by bolts and joggles; two of these bolts, which in the outer rim are of Muntz's metal, and in the inner part of galvanized iron; are driven through each stone, into holes one foot deep in the stone below it. The holes being cut larger at the ends than in the middle, the bolts are fox wedged at each extremity, and having wedges driven home, the lower one being of course placed in its aperture before the bolt is entered, swell out and become immoveably fixed in their sockets. The joggles are oblong pieces of slate, one foot long by six inches square, and are stood in holes shaped to receive them in the stone already fixed; their upper half fitting into a similar one in the descending stone. These stones are chiefly granite, from the neighbourhood of Penzance; but those outside the whole way up, are from the granite quarries at Penryn, near Falmouth, and some few from Chusewing, also in Cornwall; these two latter kinds being chosen because much finer grained stone, and therefore admitting of being ground to a very smooth surface. As far up as the 20th course, or forty feet from the base, the lower stones over lap those next above them; leaving a ledge or step about 10 inches broad at the base, and gradually decreasing to 2½ inches; the object of this being twofold,—to prevent the sea when dashing against the lighthouse from getting under and lifting the stones it

presses; and also, that as it recedes the water dropping from step to step may meet the succeeding wave, and in that way help to check it.

The Eddystone, built on the side of a sloping rock, has no less than six imperfect courses at its base; but at the Wolf, the rock, which is less uneven, has been cut with considerable labour so level at the site of the lighthouse, that the first course only is a broken one, being composed of three stones on the West side; while the second course is complete. As high as 40 feet from the rock, and 22 feet above high water, that is to say to the twentieth course, the lighthouse will be quite solid; with the exception of the upper 7 feet, in which is a space 7 feet in diameter for a water tank. At that height will be the entrance door of the lighthouse, looking to the eastward.

The lighthouse will then be ascended by a spiral staircase of stone; six chambers intervening between the entrance landing and the lantern. In the first of which the coal and water will be kept; the second will be the oil room; third, store room, with a door looking N.E.b.E.; fourth, the living room; fifth, bed room; sixth, the service room, as it is called, in which one of the two men watching the light will remain dressed while the other is in the lantern: and then comes the light itself.

The Wolf Rock is situated in lat. $49^{\circ} 55' 45''$ N., long. $5^{\circ} 48'$ W., and the principal bearings from it are:—

The Brissons	N. 44° E., $7\frac{1}{2}$ miles
Tolpeden Penwith	N. 67° E., $7\frac{1}{2}$ miles
Land's End	N.E. $\frac{1}{4}$ E., 8 miles.

It is quite an isolated rock, with no shoals immediately round it; and falls away very soon into deep water, particularly from N.W. to East. The rock is formed of killas or green stone, extremely hard in substance, and may be called a felspathic trap rock. In shape it may be described as an oblong, measuring 160 feet by 140 feet at low water; and this is quite the extreme of its size.

On July 16th, having been kindly granted leave by Mr. William Douglas, the engineer in charge of the work, to take a passage off; we found our way to the quay at Penzance, and embarked soon after 5h. a.m. in the schooner that is used for the masons to live on board; which vessel being taken in tow by the tug that attends on her, arrived off the Wolf, distant eighteen miles from Penzance, soon after eight o'clock. Although the weather had been for some days fine, and the day before nearly calm, a light breeze springing up from the eastward as we started, caused a bubble of a sea, that rendered landing on the rock very difficult. Probably no lighthouse was ever built in such an exposed position, for in addition to its being so far from all land, that a breeze from any quarter makes the sea break on it, there sets in at times a heavy ground swell from the westward, caused probably by gales far off in the Atlantic, which will for days prevent any work on the Wolf, although at the rock itself there may be a calm.

One glance at the chart would show any one that in comparison to

the Wolf the Eddystone is quite a sheltered spot; and the fact of that lighthouse having been built in three years, while it took two years' work to prepare for laying the first stone at the Wolf; that is to say, to cut out the foundation and build the landing place; while the three stones of the first course, being lowest down, were not actually placed till the third year, is the best proof of the relative difficulty of the two works.

The landing place for stones and other material, is on the East side of the rock, and built so high as not to be covered in smooth water at the highest tides. On this is erected a mast and derrick, to clear the stone barges; and buoys are moored off to make fast ropes to, and veer the boats or barges in towards the rock.

On the occasion of our visit, the sea was too rough to admit of the barge going alongside; so she had to lie off fast to the buoy, with just enough scope to keep her stern a few yards from the landing place; and the chain from the derrick being overhauled into her, two light stones were landed by easing them gradually out of the barge. The men's landing boat, which is diagonally built, shaped the same at each end, and in form not unlike a man-of-war's paddle-box boat, was veered in towards the rocks on the North of the stone jetty, and a rope being fast to a stanchion on shore, the man about to land stands on the head sheets, with one hand holding the rope, and with the other steadying himself by a bollard in the boat, watching his opportunity to jump. No one is allowed to land without a lifebelt on; a necessary precaution, as of course at such a place men must occasionally fall overboard or be swept off the rocks; and at times the sea rises so suddenly while they are at work, that the boats are unable to approach close, and the men have to jump into the water, and be hauled off to them. The stones having been hoisted on to the jetty, are placed on a small tramway, and so transported to the lighthouse, distant about fifty feet; when they are lifted by a derrick into their position.

The method used to sling them may interest the uninformed, and is as follows. A hole about four and a half inches long, one and a half wide and five deep, is cut in the centre of the upper side of the stone, about an inch and a half longer at the bottom of the hole than at the top; and into this are inserted three pieces of iron, each with an eye in its head, the two side ones being nearly an inch broader at the bottom than above, while the centre is the same size throughout and entered last; these are so shaped as exactly to fit the hole, and called a lewis, through the three eyes goes a shackle pin, and the stone is then ready for lifting.

It may not be out of place to say here a few words illustrative of the wonderful force of the sea on the Wolf Rock. Last winter the fifth course was unavoidably left incomplete,—having only thirty-four stones set on it,—and being therefore less able to withstand the sea, was found, after a very heavy gale in November, quite swept away; although the stones had been fastened by cement, bolts, and joggles. It is of course possible that some piece of wreck may have been

washed against it, and so started the stones; especially as a merchant ship passed close by in the gale, and cutting away her mizen mast just to windward, barely wore short of the rock, which she could not weather; and her captain thinks her spars may have been thrown on to it. But be this how it may, the Wolf Rock gives us proofs in plenty of the power of the sea; for an iron mast, firmly stepped on the landing wharf, about 20 feet long and 7 inches in diameter, was considerably bent by the sea dashing against it; besides this, the stands of a winch, rivetted firmly into the rock, with legs about two and a half feet long and three inches in diameter, of solid iron, leaning towards each other and joined at the top, were broken off close down to the rock; while several stanchions, about three feet high, and nearly as strong as a single part of the winch, stand; placed round the lighthouse for a man-rope to be rove through, were bent down during the winter by the waves repeatedly striking them.

With such proofs of the power of the waves, one wonders that any thing can be made to stand for long on the rock; but the resistance each stone of the lighthouse offers may be calculated as about 100 tons, increased of course very greatly by the number of them backing each other up; while the weight of the superstructure will assist in making a firm body to resist the sea.

At the present date the seventh course of the Wolf lighthouse is just finished, and the eighth being commenced, which will be just above the level of high water spring tides, as the top of the seventh is only eighteen inches below it; so that when the course now in hand is complete, the work may be continued in very calm weather through the whole day; in addition to which, the number of stones in each course rapidly decreases; and whereas in the second, or lowest complete course, there are seventy-three stones, half way up the lighthouse they have decreased to sixteen. When we further consider, that above the twentieth course no bolting is required, and that a mast will now be fixed in the centre of the lighthouse, with a derrick rigged out from it, that will plumb any part required, we shall readily see, that the progress already made will bear no comparison with what may be hoped for.

In conclusion I will only add, that it is calculated the lighthouse may be finished in three years more; in which case it will have taken altogether about eight years to build. The light is to be visible from a ship's deck fourteen miles off. Let us wish all success to Mr. Douglas and his work, and hope it may shine for many years,—a friendly warning to mariners, and another monument of English skill and perseverance.

E. H. SEYMOUR,
Commander, R.N.

THE CHRONOMETER JOURNAL IN DIAGRAM.

The diagram embodies graphically the chronometer journal, and its object is to furnish a means of reaping the greatest possible advantage in a simple and practical form from the comparisons as ordinarily conducted on board ship. These comparisons are recorded in the journal, and by inspecting the columns the navigator draws conclusions respecting the value of his several chronometers; but this estimate is generally conducted in a rough general manner, and the result is not commensurate with the data at command. We believe that these data can be easily and accurately utilized. Our wish being principally to call attention to the subject among navigators, we shall submit two methods for their consideration. It must be remembered that our rules are purely empirical. The first method is practically applicable for three watches only, the second method is equally convenient for any number.

I. The case of three watches is so much the most common that it deserves a separate examination. Even though the method cannot be usefully extended to a larger number of watches, if it is simpler than a more general rule it will not be without value. We have a preliminary word to say on the manner of comparing the chronometers and the form of keeping the journal. The recognized system is to fix upon one of the chronometers as the "standard," and to compare the rest with it; the record of the standard holding the first column in the journal. Annexed is a specimen of a journal kept according to the form directed by the Admiralty Instructions, the columns not relating to the comparisons being omitted.

Date.	Time by A.			Diff. A and B.		Daily Diff.	Time by A.			Time by C.		Diff. A and C.		Daily Diff.				
	h.	m.	s.	m.	s.		s.	h.	m.	s.	h.	m.	s.		m.	s.		
1864. Jan. 1	12	12	0	11	43	20	28	40	1.0	12	13	0	12	43	43.5	30	43.5	8.5
2	12	29	0	12	0	19	28	41	1.0	12	30	0	13	0	52	30	52	8.5
3	12	33	0	12	4	18.5	28	41.5	0.5	12	34	0	13	5	1	31	1	9.0

Now we think the assumption of any one of the chronometers to be the standard, when there are only three on board, is not necessary for the sake of convenience, and it acts, we believe, as a hindrance to fully utilizing the whole number of watches. A great check is furnished by comparing all the chronometers together, two and two, instead of only comparing each of the rest with the standard. And again, regarding one as the best is apt to bias our judgment in its favour, though experience shows that the sea-rate may differ from the shore-rate and that a set of chronometers may interchange their relative values within a very short lapse of time. The following is a form we have found used with great advantage. A is first compared with B, then after an interval of 1m. A is compared with C, the result of this comparison when inserted in the journal being diminished by 1m.,

and finally B and C are compared together as a check. We give the journal, as actually kept, for parts of the month of January, 1864, as we shall use the journal for this month to exemplify our diagram.

Date.	A.			A—B.		Daily Diff.	B.			B—C.		Daily Diff.	C.			C—A.		Daily Diff.
1864.	h.	m.	s.	m.	s.	s.	h.	m.	s.	m.	s.	s.	h.	m.	s.	m.	s.	s.
Jan. 1	12	12	0	28	40	1·0	11	43	20	59	23·5	9·5	12	42	43·5	30	43·5	8·5
2	12	29	0	28	41	1·0	12	0	19	59	33	9·5	12	59	52	30	52	8·5
3	12	33	0	28	41·5	0·5	12	4	18·5	59	42·5	9·5	13	4	1	31	1	9·0
4	12	20	0	28	42·5	1·0	11	51	17·5	59	52	9·5	12	51	9·5	31	9·5	8·5
5	12	29	0	28	43·5	1·0	12	0	16·5	60	0·5	8·5	13	0	17	31	17	7·5
20	12	12	0	28	50·5	1·0	11	43	9·5	62	15·5	9·0	12	45	25	33	25	10·0
21	12	19	0	28	48·5	2·0	11	50	11·5	62	24·5	9·0	12	52	36	33	36	11·0
22	12	24	0	28	45·5	3·0	11	55	14·5	62	33·5	9·0	12	57	48	33	48	12·0

A glance at this journal is sufficient to show that during the latter part of the month the two watches B and C are going well together, whereas A is keeping time with neither, and so marked is the irregularity in this case that no master would place much reliance on the chronometer A though it had been originally the standard. We have chosen this palpable instance for the sake of illustration; it is embodied in the following diagram.

In this diagram the vertical columns represent successive days, and the horizontal columns intervals of one second. The dark horizontal line is the zero line from whence the ordinates denoting the daily differences are measured; the region above it being considered positive, and that below it negative. On any given day the sum of the ordinates is equal to zero, this check holding always true. The broken lines or curves depict the fluctuation in the combined rates of the two watches compared, *i.e.*, the daily difference of the differences of the two A and B, B and C, C and A. It is probable that the irregularities in the curve which exhibits the comparison of A and B will be caused chiefly by the fluctuation in the rate of one of them, A or B, and similarly for the others. The more irregular a curve, then, the greater the probability that one of the watches involved is going badly. Hence if we name each curve by the watch which is *not* involved, writing the distinguishing letter in brackets, as (A), that curve may then be taken by its inverse form to indicate the degree of reliance to be placed on the watch; in other words, the less irregular the curve which is called by the name of the watch not involved, the less valuable will be the indication of that watch. We have, for example, three watches, A, B, and C; the curve representing the fluctuation in the combined rates of A and B is named (C), that representing the fluctuation in the combined rates of A and C is named (B), and that representing the fluctuation in the combined rates of B and C is named (A); and the form of

these curves indicates the reliance to be placed on the watch, that curve which is the most broken and which has the widest range representing the best watch, and that which most nearly approaches a horizontal line, the worst watch. There are two elements in the chronometer curve, the "range" and the "susceptibility," and a combination of these gives the value or what may be called the "weight" of the chronometer.

The "range" for any period is the length of the perpendicular between the extreme points of its fluctuation during the period; the "susceptibility" is the sum of its daily fluctuations during the period. Of these the range is the most important, but the susceptibility must not be neglected. As the chronometers, however, on board are compared only to the nearest half second, it is not easy to estimate the susceptibility correctly. For instance: if the beats of two watches are separated by $\cdot 2s.$ on one day and that is neglected, and the next day by $\cdot 3s.$, which you reckon at $\frac{1}{2}s.$, you thus give a fluctuation of $\frac{1}{2}s.$ to add to the susceptibility when there is only $\cdot 1s.$ These small quantities accumulate in the month, and hence in estimating the weight we have, in what follows, divided the susceptibility by 3 before adding it to the range. We may observe on passing that a more correct method of comparing chronometers on board ship, especially on board surveying vessels, might be adopted without very much increasing the labour. The principle of the vernier applied to intervals of time is used in observatories to compare chronometers, but there the astronomical clock furnishes a regularly going standard for coincident beats. On board ship the same method modified might be taken advantage of by the use of a hack-watch, which purposely gains or loses say 5m. a day. It will be possible to obtain coincident beats of each chronometer with this hack watch without having to wait very long, and an easy calculation will then eliminate the hack watch, and give the difference between the indications of the chronometers correct to $\cdot 1s.$ But in the chronometer journal used in drawing up the present paper the ordinary method of comparison was adopted. To return to the diagram.

In the example chosen the three chronometers went well together during the former half of the month, but *a glance at the diagram shows that during the latter half of the month the chronometer (A) has probably gone altogether adrift.* Our first thought would be to reject this chronometer and use the mean of the other two in our reckoning. Still, it so happened that on leaving England for the West Indies this chronometer was considered to be so far the best that it had been fixed upon as the standard. A navigator might therefore be disinclined to exclude this watch altogether because two less reliable watches happened to be going together, and the arithmetical mean of the indications of the three watches is in such a case generally used, with a reservation however against the eccentric chronometer. It is evident that this arithmetical mean cannot give a correct result, and also that if we take into account the value of the different chronometers, our

estimate will probably be much nearer the truth. The following method gives what may be called the "weight-mean:" it embodies the results indicated by our diagram and may be used with advantage to determine the probable Greenwich time on any given day.

Let a b c be the known rates *losing* of the chronometer on a given day;

A B C the known errors *slow* on G.M.T. on the same day;

and on t days after, let P Q R be the times denoted by them at one particular instant: Then the corresponding G.M.T. will be

$P + A + at$ by the first chronometer.

$Q + B + bt$ " second "

$R + C + ct$ " third "

These will probably differ only in seconds, and we may represent them by

$$T + \alpha$$

$$T + \beta$$

$$T + \gamma$$

where T is any common number of hours and minutes.

Suppose P_1, P_2, P_3 to be the estimated weights of the three chronometers as deduced from the month's record: then the probable time will be

$$T + \frac{P_1\alpha + P_2\beta + P_3\gamma}{P_1 + P_2 + P_3}$$

To take the example shown in the diagram.

An observation (artificial horizon) was taken January 1st, which gave the following errors and rates (combining an observation taken seven days previously) of chronometers A, B, and C.

A error 17 42.57 fast, rate .06 gaining.

B " 10 58.30 slow, " 1.32 losing.

C " 48 19.99 fast, " 9.22 gaining.

Required the G.M.T. on January 31st; the diagram giving the following values of the range and susceptibility,

$$r_1 = 25$$

$$r_2 = 14$$

$$r_3 = 14$$

$$s_1 = 10$$

$$s_2 = 17.5$$

$$s_3 = 16.5$$

Taking the formula $p = r + \frac{s}{3}$ we have

$$p_1 = 5.8$$

$$p_2 = 19.8$$

$$p_3 = 19.2$$

	A	B	C
Time shown by chronometers at the same instant, January 31st.	12 12 0	11 44 27.5	12 48 26.5
Error January 1st	- 17 42.6	+ 10 58.3	- 48 20
	<hr style="width: 100%;"/>	<hr style="width: 100%;"/>	<hr style="width: 100%;"/>
Accumulated rate 30 days	11 54 17.4	11 55 25.8	12 0 6.5
	- 1.8	+ 39.7	- 4 36.5
	<hr style="width: 100%;"/>	<hr style="width: 100%;"/>	<hr style="width: 100%;"/>
	11 54 15.6	11 56 5.5	11 55 30
	T = 11h. 54m.		

$\alpha = 16$	$\beta = 128$	$\gamma = 90$
$p_1 = 6$	$p_2 = 20$	$p_3 = 19$
<hr style="width: 100%;"/>	<hr style="width: 100%;"/>	<hr style="width: 100%;"/>
96	2520	1710
2520		
1710		

$$\begin{array}{r}
 p_1 + p_2 + p_3 = 45 \quad 4326(96) \\
 \hline
 405 \quad \hline
 \quad 1 \ 36 \\
 \hline
 276 \\
 270 \\
 \hline
 6
 \end{array}$$

Hence the time required is 11h. 55m. 36s., which was found by an observation obtained on February 1st, to be much nearer the truth than the time obtained by taking the arithmetical mean of the indications of the three chronometers, viz., 11h. 55m. 17s. On rejecting A altogether and relying on the joint indications of B and C, by taking either the arithmetical-mean or weight-mean, a result still nearer the truth was obtained. It requires, however, great cause to induce a navigator altogether to discard a previously good chronometer, for we must bear in mind that the other two watches, B and C, might make a compact while departing widely from their previously ascertained rates to do so by nearly equal steps, being influenced by the same disturbing causes. In this case the value of A would be unduly depreciated and those of B and C unduly exalted in our estimate. And here is a weak point in this method. It may be objected that an eccentric watch is unduly depreciated, and also that there is not sufficient distinction made between the other two. Our second method is less open to these objections.

II. We now proceed to consider the case where there are more than three chronometers on board. Here the method just described would be practically useless on account of the large increase of labour. With four chronometers we should have six differences, two and two, in three of which the watch A would not be involved, and so with the rest; and the matter would become more troublesome as the number of our watches increased. The following method has been suggested to me by a friend, and it is equally easy of application what-

ever be our number of watches. The principle of it is to take as a measure of the *worthlessness* of each watch its departure from an imaginary mean clock M . The daily variations in the difference between each watch and the imaginary mean-clock will furnish the ordinates for the construction of the curves in our diagram. In such a diagram the more nearly any curve approximates to a straight line the more valuable does it indicate the watch involved to be. We give a diagram so constructed for the same example depicted on page 456. Our journal may be conveniently tabulated thus:—

	1st.	2nd.	3rd.
	h. m. s.	h. m. s.	h. m. s.
A	12 12 0	12 29 0	12 33 0
B	11 43 20	12 0 19	12 4 18.5
C	12 42 43.5	12 59 52	13 4 1
$\frac{1}{2}$	36 38 3.5	37 29 11	37 41 19.5
M	12 12 41.2	12 29 43.7	12 33 46.5
a	— 0 41.2	— 0 43.7	— 0 46.5
δa	—	2.5s.	2.8s.
b	— 29 21.2	— 29 24.7	— 29 28
δb	—	3.5s.	3.3s.
c	+ 30 2.3	+ 30 8.3	+ 30 14.5
δc	+	6s.	6.2s.

where $a=A-M$, $b=B-M$, $c=C-M$, and δa , δb , δc are the daily variations of these differences. These latter are the quantities embodied in the curves. Checks in the calculation are afforded by the conditions—

$$a + b + c = 0 \quad \text{and} \quad \delta a + \delta b + \delta c = 0$$

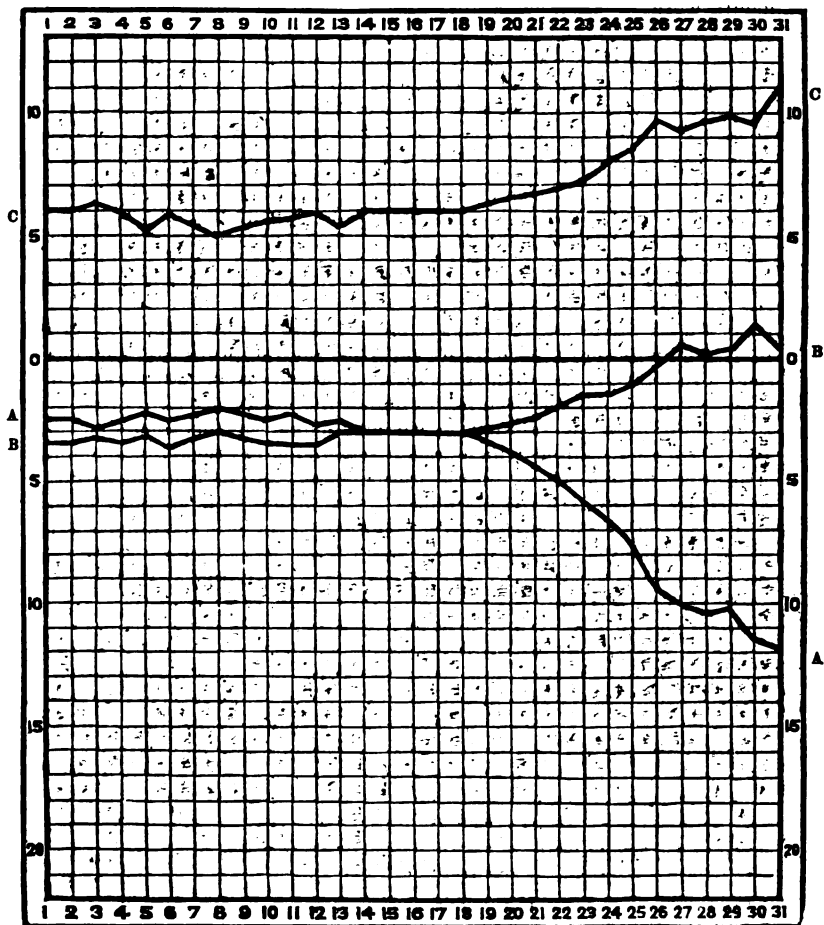
A simple inspection of this diagram leads us to the inference that the degree of dependence to be placed on our chronometers is in the order B, C, A, the last being decidedly the worst.

The range and the susceptibility determined as in method I. will here indicate *not* the weight of each watch but its imperfection, and the reciprocal must be taken to represent the weight. Thus,

$$\begin{array}{r}
 r_1 = 9.8 \\
 \frac{1}{s_1} = 3.5 \\
 \hline
 13.3
 \end{array}
 \qquad
 \begin{array}{r}
 r_2 = 4.9 \\
 \frac{1}{s_2} = 2.8 \\
 \hline
 7.7
 \end{array}
 \qquad
 \begin{array}{r}
 r_3 = 6.2 \\
 \frac{1}{s_3} = 3.1 \\
 \hline
 9.3
 \end{array}$$

$$p_1 = \frac{100}{13.3} = 7 \qquad p_2 = \frac{100}{7.7} = 13 \qquad p_3 = \frac{100}{9.3} = 11$$

January, 1864.



Ranges.

- A From -2 to -11.8 = 9.8
- B From -3.6 to +1.3 = 4.9
- C From +5 to +11.2 = 6.2

Susceptibilities.

- A = 10.7
- B = 8.4
- C = 9.2

If the example in page 458 be worked with these values, the time required would be found to be 11h. 55m. 28s.

The rates of the chronometers obtained at the commencement of the month were—

A	0.06	gaining.
B	1.32	losing.
C	9.22	gaining.
Sum	7.96	
∴ Rate of mean clock M	2.65	gaining.
∴ A should lose on M	—2.59	
B should lose on M	—3.97	
C should gain on M	+6.57	

And these quantities ought to be the constant values of δa , δb , δc , if the watches remained perfect.

When one month's comparisons have thus given the weight of A, B, C, it would perhaps be well in carrying on the work for the next month to multiply the indications of each watch by its weight and divide by the sum of the weights to obtain the mean.

In addition to the rate-curves we may depict in the same diagram the disturbing causes which affect the going of the chronometers. Thus *e.g.* the indications of the thermometer may be conveniently recorded by means of a red ink curve. We should thus be aided in determining which of the disturbing influences is the most dangerous generally, and which is prejudicial to each watch specially. This part of the subject, however, cannot be entered upon in the present paper.

J. B. HARBORD.

THE MARIANAS ISLANDS. — *Agrigan, Assumption, Urracas, Pajaros.*

(Concluded from p. 363.)

Isle Agrigan.—This island is about six miles long, and two and a half wide, lying nearly N.W. and S.E., and is tolerably high. The *China Pilot*, by John King, 3rd edition, 1861, says, he considers it is 2,026 English feet high; but this is in my opinion a mistake, for that is the height which has been assigned by others to the volcano of Assumption. This seems to be too much for Agrigan, for I don't believe it is more than two-thirds that height.

Seen from a good distance south of it, Agrigan assumes the form of a complete trapezium with two small eminences at its principal ends. It is probably to this circumstance that it owes its name, which in the Chamorro language signifies a shell, although not a single shell is to be found in the whole island.

From 7 p.m., to 11 on the 5th of January, the *Narvaez* was

anchored about half a mile from its western shore, and on the 9th she anchored to the S.W. of it. The whole shore of the island is quite clean. On the morning of the 9th I ran down its western shore at a short distance, and could see no break whatever except on the beach. It is also very steep to; the part where a vessel may anchor is very limited, and at all the rest of the shore the water is very deep close to the rocks. The anchorage may be known by being off the only sandy beach of the whole island. But off this beach there is no bottom to be had until within four cables of the shore, and then it will be 16 to 18 fms. black sand. The anchor must be dropped off a very small reef which extends off this sandy part at its N.W. end, and which is the only reef there is there. The pilot who was in the *Narvaez*, who had often been at Agrigan informed me that there is not another place where a vessel may anchor. The *Narvaez* anchored with the following bearings: Agrigan S.W. point, N. 24° W.; South point S. 64° E. Pagan N.E. volcano S.b.E., central height S. 12° E., S.W. height S.b.E. These bearings are magnetic; the variation 3° E.

The vessel at anchor lay three or four cables off shore, and rather above a mile from the landing-place. The holding ground is good, but the anchorage much exposed, and in West to S.W. winds a vessel is in a dangerous position there.

Between the *Narvaez* and the South point of Agrigan there was a large shoaly looking patch in the water, with darker parts in it indicating deeper water. I passed over it in the boat on my way to the shore, and it seemed not to have less than 6 fathoms; the water must be discoloured by the character of the bottom. Still as I was unable to sound it, a vessel should approach it *very cautiously*.

The landing place is very bad. The stem of the boat is on shore, while her stern is not near the ground; and as the beach is very steep the swell is very trying to her, knocking her about very much. The weather was magnificent, and yet our boat of twelve oars, landing in the middle of this beach knocked herself to pieces, and we had to land from a canoe made from the trunk of a tree, about half a yard wide, and which would really carry but one person besides the Indian who paddled it. In this kind of canoe (which among the Philippine islands is called baroto) the Indian himself had come from Pagan to Agrigan; the same of whom I have spoken before, named Salas, whose canoe was wrecked on another island.

The beach is composed of black sand, very coarse but also light. The island is evidently volcanic, although there is no appearance of any open crater, nor indeed any vestige of one. Still the calcined rocks, and the light scoria met with every where, clearly betray its origin. The South point is composed of rock, and over all the shore of the island are scattered huge fragments of it here and there.

King's directory (the *China Pilot*) says, "this island is volcanic, having some small trees on its North and South points, which gradually slope down to what appears to be a crater, and which in certain epochs has deposited lava or black ashes at a considerable distance

from its sides." But this is erroneous. That the island is volcanic is quite evident, as I have said; but there is neither evidence of a crater nor signs of lava. Besides the result of my own observation, I have the notes before me of persons who have lived a long time on the island, and who have traversed it in all directions, without finding any signs of a crater whatever, either old or modern. The ground is very fertile, and the island is covered with vegetation everywhere, from the beach to the very summit.

Agrigan produces in abundance, cocoa-nuts, plantains, and tropical roots, and has plenty of pigs, goats, and fowls. The present governor established a place for salting similar to that at Tinian; but being unable to keep up intercourse with it was obliged to abandon it. The *Narvaez* took on board the twelve men who formed the population of the island and all their transportable things the ship could contain. A multiplicity of animals were embarked with them, and among them more than a thousand pigs, which were tamed, and when we started off with our collection one would suppose the whole island was afloat. If any vessel should touch there now, houses and empty buildings will be found, cultivated ground and some domestic animals, roads commenced across the woods, some moveables in the houses and casks, and as a watch over all a humble wooden cross on a cocoa-nut tree, watching over a grave under a grove of those trees.

Isle Asuncion (Assumption).—On the 6th of January at daylight, and in the course of the morning, we passed under steam along its eastern shore, at the distance of about 7 cables; and on the 8th I returned under sail along its western shore, at the distance of about a mile and a half.

It is a conical mountain about a mile in diameter, on the summit of which there is a wide crater. When I passed near it the first time, it was crowned with a white vapour, which I did not consider was smoke of the volcano, but thin clouds resting on the mountain. The eastern slope of it is formed of lava, and it appears that the wash of the sea rises to a considerable height up its side. In fact the effects of the sea are visible to a height *double* that of our mastsheads, and really about 300 feet, perhaps more, an evident proof that in severe storms the sea runs up it, the sides scarcely offering any resistance, and also of the very great depth of water there.

On its eastern side there is scarcely any vegetation; only a little lichen is seen above the limit reached by the sea.

On the 6th, when we passed it, the sea was nearly calm. On the shore no other break was seen than that against the actual side of the mountain, and there can be no doubt that alongside of it here, the depth is very great. Off the South side of it we observed a change in the colour of the water. We slackened our pace for a moment to sound, but found no bottom with 120 fathoms, when about half a mile from the shore.

On the North side of it, there is a needle rock, over which the sea washes, and shows day-light through it. This is a cavity formed by the wash of the sea, but North of it are two rocks above water, and

between which the sea breaks. These rocks are about a cable from the island.

On the Western side the slope of the mount slants rather more than on any other, but very little. In fact it may be almost considered a perfect cone. The shore on this side is like the rest, nearly up and down. The South point, which is the lowest of the island, throws out two or three rocks, but not half a cable from it. On the S.W. side some trees were seen, and no small signs of mischief in the slope of the mountain near the sea. The powerful vegetation of the tropics flourishes here, and is all the same whether on rocks, sand, or ashes.

The rocks off the Southern part are exactly in that direction from the point itself, and the same occurs with the rocks off the North point, extending to the northward of it.

Raper says that the Western slope has trees and some little water, and that landing may be effected with difficulty.

We know of no one ever having landed on it, but the celebrated and unfortunate Le Peyrouse. Here is a copy of the Admiral's diary in reference to Assumption, and it does not appear that he was there at any other time.

He says, "The method of determining the longitude by lunar distances in connection with chronometers leaves so little to wish for, that we have determined the position of Isle Assumption of the Marianas, with the greatest precision, on the supposition that Tinian (the position of which was given by Wallis) may be a little South of Assumption, as assigned by all geographers and voyagers to the Marianas. We made these islands on the 14th of December, 1786, at 2 p.m. I had shaped my course so as to pass between Isle Mira and the Jardines; but the numerous vacant spaces in the chart where there never has been found land, deceive navigators, who afterwards find it to the North or South. The same may be said of Assumption, which is one of those known of the group, and of which we have a history in several volumes. It is placed in the Jesuits' charts 30 miles too far North. Its true position is $19^{\circ} 45' N.$ and $143^{\circ} 15' W.$ of Paris." In fact the astronomical position of the island leaves no room for correction.

"According to us from our anchorage where we noted Las Manga 28° to the West about 5 leagues, we have found the three rocks of this name are also $30'$ too far North; and it is nearly certain that the same error exists in the position of the Urracas, the islands of which do not reach further than $20^{\circ} 20' N.$ The Jesuits have estimated the relative distances of these islands from each very well, but at the same time have laid them down astronomically, very badly! They are not happy either in the proportions of Assumption: they give it as six leagues in circumference: our angles reduce it to one half, and even half of this again: the highest point is about 200 toises above the sea. The most lively imagination could scarcely conceive a more horrible place. Its ordinary appearance to us after a long run gave us a pleasing impression of it; but we found it a perfect cone, the summit of which 40 toises (256 English feet) above the sea, was as black as

coal. This could not but vex us, and disappoint our hopes, as for some weeks we have been reckoning on the advantage of the cocoa-nuts we should find on any island of the Marianas.

“We certainly observed some cocoa-nut trees, but which did not occupy more than one-fifteenth part of the island, on a space about a hundred yards wide, which had concealed themselves (so to speak) out of the strength of the Easterly winds; and this, also, is the only place where a vessel can drop her anchor on a ground of black sand in 30 fathoms, about a quarter of a league from the shore. The *Astrolabe* had gained this anchorage, and I also had dropped my anchor about a pistol-shot from her; but having only given half a cable we lost the ground, and I was obliged to make a couple of boards to get nearer the shore. This accident, however, gave me little concern, for I clearly saw that the island did not require much of our attention. My boat was on shore in charge of M. Boutin, lieutenant-de-navis, the same who had been in the *Astrolabe* with M. de Langle, &c. With my telescope, I had observed they had much difficulty in landing; the sea was breaking every where on the shore, and they had availed themselves of an interval between two waves to get out of the boat up to their necks in water: my fear was that re-embarking might be even more difficult, as the sea might get more up and become worse than it then was; which, in fact, was my sole reason for anchoring, for we should be as careful to get away as we had been desirous of reaching the island. Happily at two in the afternoon my boats returned, and the *Astrolabe* made sail. M. Boutin informed me that the island was very much worse than it appeared, from our distance of a quarter of a league. The lava had formed huge precipices over barren glens, surrounded by a few cocoa-nut trees here and there mixed with brambles, and a very small number of plants among which it is hardly possible to move over a couple of hundred yards in an hour. Fifteen or sixteen people were employed for three hours in collecting in the boat about a hundred cocoa-nuts which they had only to pick up under the trees, but the greatest difficulty consisted in getting them to the sea-side although the distance was trifling. The lava from one crater had covered the whole surface of the cone to a distance of about 80 yards from the sea; the summit seemed by some means to be crystallized, but with black and sooty colour. We did not succeed in ascertaining the height of the summit as it was always covered with a cloud; and although we have not actually seen it smoking, the smell of sulphur which pervaded the atmosphere over the sea for half a league around it, led me to believe it was not extinguished, and also that it was possibly not long since the last eruption had occurred; for there seemed to be no decomposition of the lava in the middle of the mountain.

“Everything indicated that no human creature, not even quadruped of any kind, was so unhappy as to have no other asylum than this; for here we saw nothing more than crabs of an enormous kind, that would be very dangerous to a person whom they might find asleep. One of them was brought on board, and was probably rambling in the

island after eggs of sea birds, some of which they had evidently eaten. We did not see at the anchorage more than three or four sea-gulls, but when we approached the Mangs, our vessels were surrounded by an innumerable quantity of them. Mr. Langle killed on Assumption a bird like the blackbird, which however, was not added to our collection, as it fell down a precipice. Our naturalists found among the rocks some very beautiful shells. The botanist made a large collection of plants and brought three or four species of plantains which I had never seen before anywhere. We saw no other species of fish but a red one, some resonas, a water-snake, which was about three feet long and three inches in diameter. The hundred cocoa-nuts and the small collection of objects which we had snatched so rapidly from this volcano, for it is nothing more, had exposed our boats to considerable danger. M. Boutian, who had jumped into the sea on landing and re-embarking had hurt his hands very much, as he had been obliged to hold to the rocks as well as he could, and had run great risk, always inseparable from landing on small islands, and especially if they be round; the sea washing all parts of it with so much swell as to make landing difficult."

"Happily we had plenty of water on board to take us to China, for it would have been difficult to have met with it on Assumption; none of our people saw any except in the hollows of two or three rocks, where it lay as if in a basin, and the largest of them would not be more than six bottles."

"The *Astrolabe* having made sail at 3, we continued our course W.b.N., passing the Mangs at 3 or 4 leagues distance N.E.b.N. of us. I wanted to determine the position of the Urracas, but it would have lost me a night, and I was anxious to get to China, for the vessels which were to sail for Europe I feared would be gone before we arrived. I was particularly anxious to send home to France the details of our proceedings on the American coast, as well as the account of our voyage to Macao; therefore to lose no time I made all sail possible."

The description which Peyrouse gives of Assumption is in no way exaggerated. The island is arid and bad in the extreme. As the illustrious navigator observes it is no more than a volcano.

When we passed along its Western side, the weather was superb. The summit of the mountain was quite free from cloud or vapour of any kind, so that the distances of its parts were quite evident. The peak is covered with ashes all round, which occupy more than a third part of the mountain. Not the slightest trace of smoke was to be seen; but I am inclined to believe that the volcano is not every where quiet, for if it were, the ready vegetation would have commenced, at all events on the lee side of the mountain; but there was none.

Peyrouse was no doubt anchored on the S.W. side of the island, perhaps nearer to the South point; but I cannot tell where he let go his anchor, for although I sought for a place I could find none where there was any appearance of soundings. The sea was of the same

colour all round it, and the sea broke on all its shore, echoing from the rocks on which it broke in that deep tone which betokens a deep sea.

Assumption is very high. Peyrouse does not give it more than 1,400 feet; but he was not able to discover its summit, and consequently his calculation is not founded on good authority. Other navigators (see Raper's tables) give it 2,026 English feet (or 2,216 Spanish); but both accounts are evidently too little. It may be perceived by a glance that the cone is in height half the breadth of the base, and this being one mile across, it is clear that the height of the peak must be half a mile. Besides this estimation of the eye, it has been confirmed by calculation. Two series of very good observations were made on the 8th of January at different distances from the volcano, under most favourable circumstances, without a cloud in the sky, the sea calm, and no vapour about the mountain. The results of these observations gave a mean of 2,848 feet, three hours having intervened between the two sets of observations, and a difference of distance in the island of 7.7 miles from the ship.

The Urracas Isles.—On the 6th and 8th of January we passed very near these isles, to the Eastward of the first, and to the Westward of the second.

They are three islets. The Westernmost is the largest, and the smallest that to the N.E. They are tolerably high, very broken, and the three form a circle about two or three miles in diameter, the included space being a kind of lake. They are connected by breakers extending from one to the other, which seem to complete the circle that is marked out by the lay of the islets. The Urracas islets, seen from the outside of this circle look uniform; but seen from the interior of it they appear broken and in piecemeal. The outer aspect is a kind of reddish lava, and the interior is burnt and black. This group has the appearance of having formed one huge conical volcano, the summit of which has sunk either from the action of the fire or some similar cause. Everything about them tends to corroborate this opinion, and which as the islands seem to gain in probability until it gains almost a certainty. The Urracas are evidently the remains of an enormous submerged volcano, the twin brother of Assumption. Every one who saw them on board the *Narvaez* was convinced of this, and constructing the cone afresh on the foundation of the remains it has left, it has evidently been much larger and higher than Assumption itself.

The line of the outer shore of these islands preserves as nearly as possible the circumference of a circle. Broken as it is in three parts, still the rocks under water continue it, as they connect one island with the other. Outside the limits of the circle we found no rocks whatever: the sea broke in some places, but still it was on the rocks which form the periphery of the circle itself. The outside face of these rocks forms an abrupt declivity, but smooth and regular; but the interior surface is all confusion and disorder; they form throughout irregular masses, and sloping towards the centre, and make deep clefts

and breaks from top to bottom. The rocks show a calcined condition in many places of considerable extent. The surfaces of the broken parts of the island are all the same, black, disconnected, and burnt. The sea inside is studded with points of rocks and all kinds of broken parts, all scattered about in happy confusion.

Such a condition is evidently that which would be left by a sunken volcano. Here are, in fact, what remains of a broken crater, the chimney indeed of the conical mountain of the volcano, at the upper end of which is its crater. The subterranean fire has been so great as to break the walls of the oven, the crater dwindled away, the sea having quenched its flames, and covered the rest of it by its subsidence.

It is altogether a miserable desolate group, without a tree, without a blade of green, or even a run of fresh water. There is not the smallest vegetation except a little moss near the summit of the isle, somewhat to the West, covering the exterior faces of the rocks. On the other two islands there is not even this. Before subsiding, the volcano of the Urracas, like all others, would have trees and some vegetation on its Western slopes, which is the lee side of the mountain. The very small quantity which now remains, without being burnt up, is accordingly found on the Western side of the island, and gives nourishment to the small collection of moss which it has.

In my opinion, this submergence is not of very ancient date in geological history. It may be some few centuries, but as yet the birds (of which there are plenty) have not deposited much guano, nor has the tropical sun yet vivified with its powerful rays, the rocks of which it is formed, a process which it has effected with those which are adjacent to it. If Assumption had been inhabited the people would have preserved an account of the subsidence of the Urracas, in the same manner as the fall of the mountain of Somma has been preserved in the first century of our era, and the foundation on its ruins of the volcanic cone, which has received the name of Vesuvius.

These isles of Urracas, instead of being a maritime danger are excellent sea marks. They are visible from a considerable distance, and a vessel may pass them at almost any distance she pleases. I have already mentioned that outside of the circle which they form, there is no danger whatever.

The Mangs or Monjas of the Charts.—The charts represent a small group surrounded by an extensive reef called by foreigners the Mangs or Mangas, and by the Spaniards Monjas. Don Jose Espinosa's chart shows nothing of them: that of M. Duperrey places them S.S.W. off Assumption, between this island and the Urracas: so that it appears the group is wandering about as if it had no moorings in the ocean!

The fact is it has no existence.

The first person I believe who ever spoke of them was M. la Peyrouse, in his journal which he sent to France from Kamtschatka; the

part of which referring to the Marianas I have translated above. He says there, that being anchored off Assumption, he noted the Mangs 28° W. This is evidently a mistake. What M. Peyrouse did mean was the Urraccas, which are clearly seen from Assumption, and which I saw when I was passing the anchorage of the French Admiral. The bearing itself is also imperfect and confusing.

It is stated (see Findlay's *Pacific Directory*,) that in his journal M. Peyrouse took the bearings of a group of islands, S.S.W. about, and that this bearing is wrong; being in fact an error in the manuscript of the journal, which should have been N.N.W. instead of S.S.W. So it is stated in *Findlay's Directory*, and this is one of his reasons for introducing the translation of the paragraph relating to it.

But he has also done something curious.

This being a doubtful point he has taken for granted that the islands seen by the unfortunate Admiral must exist; and should be others besides the Urraccas, in spite of his saying distinctly that he never saw these. In consequence of this, some charts have placed them N.N.W. of Assumption, between this island and the Urraccas, first laying down Assumption, then the Monjas, then the Urraccas. The Spanish chart of 1862 has adopted this course. Others again place them S.S.W. of Assumption, as the French chart does of M. Duperry.

The English chart of the Admiralty (sheet five of the Pacific) does still more?

This chart places them S.S.W. of Assumption with the name of the Mangs; but it also places the Urraccas N.N.W. of Assumption, calling them also Urraccas or Mangs. So that it really places them in two positions, one S.S.W. and the other N.N.W. of Assumption. And as it has long been doubtful whether this group of the Mangs are or are not the Urraccas, the English chart gives to these groups both the names. We must acknowledge that even here there is an apparent eccentricity of judgment of nautical matters common among the English.

Laid down in the chart on the authority of M. de Peyrouse, no one that I know of, excepting M. de Freycinet has said that he really saw the Mangs.

According to Findlay, the commander of the *Uranie* says in the account of his voyage, that he saw these isles from the masthead of his corvette in showery weather, and the chart of M. Duperrey which was on board the *Uranie* places them as above said S.S.W. of Assumption.

I have been looking for the Mangs with the utmost vigilance in a steam-vessel, and in the clearest of weather, but without finding them. If they were S.S.W. of Assumption I have been by the side of them on two occasions; and if they are N.N.W. of it I have likewise run over them twice, on the 6th, 7th, 8th, and 9th of January.

In fact, there are no such islands, nor have they ever had any existence either where they were supposed to be, or within thirty miles of

it! I am thoroughly satisfied that they may be safely erased from the charts, and that no ship that ever navigates the Marianas will ever find them.

This is not to assert that such islands have gone to the bottom like an old worm-eaten ship fallen to pieces, nor that they were clouds that have been seen instead of islands. The Mangs do not and never did exist, for no other reason than they and the Urraccas are one and the same.

In the possibility of a vessel being lost for want of a notice, notwithstanding a danger is of doubtful existence, the extreme recourse has been adopted of loading the charts with false information on the supposition that it will do no more than increase the vigilance of looking out for it. But these same false enterings become afterwards the source of doubt and confusion to the navigator, who has not always perception enough to see what is right and what is wrong, and it establishes a new source of difficulty for hydrographers,* for some give as certain for what is doubtful, and others give as doubtful for what is certain.

The present condition of navigation does not requiree such a course of proceeding with charts, and I should say it ought not to be permitted. Such a pitiful recourse would keep the charts of the whole world in a continual state of correction, and now the chart of the Marianas archipelago may undergo the same process.

Pajaros Island.—is the northern extreme island of the archipelago. I know of no description nor any notice of this island.

Findlay's Directory merely gives its name, and of course every other does the same according to Horsburgh, King, &c. All the charts represent it as if it were a group of four or five rocks. I was under the impression that it was a rock with two or three smaller ones about it, and considering myself ten or twelve miles from it on the 8th of January, and the weather being thick and stormy, I stopped the engine and lay to for daylight, a proceeding from which I derived comfort, although I do not often do so at sea.

But I was completely deceived. Pajaros is really an island.

The Pajaros Farallon, which is worthy the name of an island, (for there are others in the Marianas of the same size and even less that are called islands,) is a high island about one and a half mile from North to South, and two miles from East to West. According to estimation the height of it is about 1,200 or 1,300 feet, which height is about one seventh of the base. It is a mere conical mountain volcano, now in action. We saw five or six columns of smoke, very black, on the S.W. part of the mountain, in which part there seems to be a crater.

Three sides of its coast that face the South, East, and North, are precipitous and bold, without any off lying dangers. There was a good deal of sea when I saw it, and we could see no break but that at

* From my own observation of many years in the Hydrographic Office of the Admiralty, no one was fonder of this method of *preserving* dangers on the principle mentioned, than the late hydrographer to the Admiralty, Admiral Sir Francis Beaufort.—Ed.

the foot of the rocks. On the S.E. side of it, there is a large rock off the shore, but connected with it. And near it to the southward are three or four other rocks, not so large, one of which, that looks like a tower, is very remarkable. Lastly, to the S.W. of the island there is another rock very close to it, that is much like the other on the S.E. side of it.

The island is tolerably steep on all sides except on the West, where the slope of the mountain is not so abrupt. There is no danger on its western side either, nor any break, except on the shore of the island. I think I may assert that the whole of the shore is quite clean, and that it may be approached on all sides within a mile. In our craft we were on the East, North, and West sides of it, from one to two miles off, without seeing any danger; and notwithstanding the swell of the sea (which was a good deal) there was no sign of any danger.

I have not been able to ascertain if there be any anchoring ground off it, as I was enabled only to run round it; but if there be it would be on its South or S.W. coast. On this part there are some trees on the island and also vegetation; but all the rest is as arid and bare as Assumption. Like the Urraccas, the isle of Pajaros, far from being a rock to be avoided in navigation, is an excellent point of recognition for vessels; being visible from a great distance, and may be approached safely by any class of them.

[We here conclude our translation of this interesting paper of Don Eugenio Sanchez y Zayas, the commander of the Spanish ship of war *Narvaez*, commenced in our last year's volume (p. 363) and continued in consecutive numbers to the present. To this officer belongs the credit of thoroughly rectifying the hydrography of the Marianas, which evidently had remained ever since their discovery in a very unsatisfactory state, but which islands, with the assistance of the chart accompanying the original of this memoir, may now be navigated with safety and certainty. Both the Admiralty Chart and Directions by Staff-Commander King may profit largely by this work of the Spanish officer, who has here alluded to their inaccuracies.—ED.]

ON THE VARIATIONS OF THE READING OF THE BAROMETER AND THE WEATHER—in the Months of September, October, and November, 1865.—By James Glashier, Esq.. F.R.S.

The variations in the readings of the barometer at the Royal Observatory, Greenwich, in the period from September 12th to November 30th, making altogether eighty days, are shown in the accompanying diagram and table, together with the general directions of the wind on every day, as determined from the records of Osler's Self-Registering Anemometer, and the number of miles of horizontal movement of the air, as self-registered by the use of Robinson's Anemometer.

During the latter part of this period there have been successive

heavy gales of wind upon our coasts, causing sad disasters at sea, and calling very frequently into use the services of the life-boats of the National Life-Boat Institution, and these, in most cases, have been attended with success in the saving of life; but unhappily in some few instances, as must ever be the case, the gales have been so violent that life has been lost; and the most noble efforts on the part of the life-boat crews, after toiling in some instances through the midnight storms, have failed entirely, the boats being unable to reach the distressed ships.

A few particulars of the readings of a good barometer during the period preceding these storms, and during their continuance, cannot fail to be useful and interesting to the brave men who are ever ready to go off in those lifeboats, as well as to sailors and fishermen generally.

The readings of the barometer from the 1st of September to the 6th day were high, and above the average. On the 7th day they decreased a little below the average; on the 8th the lowest reading in the month took place, viz., 29·76 inches; and from the 9th day it was constantly above the average to the end of the month, being mostly above 30 inches, as shown in the diagram. The weather was exceedingly fine throughout the month. The highest reading in the month took place on the 23rd. There was a little decrease in the readings at the beginning of October, but on the 3rd day the reading again rose above 30 inches, and began to decline on the 5th, continuing to decrease till the 11th. Up to the 10th day the air had been mostly calm, and fog had been prevalent, but on this day the wind began to blow strongly from the West and S.W. On the 11th the readings began to increase, and from the 12th the winds were light. A maximum barometer reading was reached on the evening of the 15th day. During the 16th the barometer readings decreased rapidly, and the wind increased in strength. A minimum reading of 28·89 inches was reached by 9 p.m. on the 18th, with strong wind blowing. Unsettled weather followed this, and the barometer readings oscillated up and down, as will be seen by reference to the diagram, and the wind was frequently very strong, reaching 20 lbs. on the square foot on the 25th day. From this time to the end of the month, the oscillations of the barometer readings were very remarkable; a decrease of $\frac{1}{2}$ of an inch was followed by an increase to the like amount; and then in very unusually quick succession, another decrease and increase to almost the same amounts, these very large and rapid changes extending over very considerable tracts of country and sea. The large numbers at the bottom of the table on those days will show how strongly the wind was blowing.

From this time there is a general bold and continuous increase in the barometer curve to 30 $\frac{1}{2}$ inches on the 12th of November, with mostly North and N.E. winds blowing, and sometimes strongly. From the 13th day set in decreasing readings, which with checks, as shown in the diagram, fell to 28·82 inches on the 22nd day. At Liverpool Observatory, on this day the reading was as low as 28·31 inches, as recorded by John Hartnup, Esq., the Director of the Observatory;

and from this time to the 28th day, there was a succession of disastrous storms.

If we collate the numbers in the lower part of the chart together with different readings of the barometer, we shall find that when the readings

exceed	30 inches,	the average daily Horizontal Movement of the air was	about 130 miles per day ;
about	30 "	ditto	160 "
between	29.5 and 30.0 in.	ditto	210 "
"	29.0 and 29.5 in.	ditto	260 "
below	29 inches	ditto	320 "

thus showing that whenever the barometer reading has been above the average, the wind has been moderate, and that as the barometer reading decreases, the motion of the wind increases, and is the greatest at the lowest readings.

It is impossible for me to urge too strongly the necessity of care when continuous declining readings are proceeding. The barometer may be almost neglected by the sailor when its readings range above the average ; but when they descend below the average, it is a warning which ought never to pass unheeded ; and when the depression is sudden, it is the sure and certain warning of the approach of storms. Such signs no sailor ought to neglect : yet they are neglected ; and what is more sad still, too many barometers sold as marine barometers are totally unfit for such an important purpose. During the last few years I have seen many of these instruments, and I have found them imperfect in numerous ways. Some of these defects I may enumerate here:—

Firstly.—The upper portion of the tube is too small.

Secondly.—The relation of the interior bore of the tube to that of the cistern is neglected, so that the rise of the mercury in the cistern, caused by a fall in the tube, is not allowed for on the scale.

Thirdly.—The lower portion of the tube is generally too much contracted in the bore.

Fourthly.—The cistern is too small to contain the mercury when the barometer reading is low.

Fifthly.—The careless cleaning out of the internal bore of the tubes, and imperfectly freeing them from damp

The most serious of these errors is the third. It is well known that the tubes of marine barometers ought to have their bores contracted so as to steady the motion of the mercury when the ship is in a heavy sea. This, in some instances, is so carelessly done, that it has not the desired effect ; but in most cases it is carried to a great excess. For instance, in some instruments the mercury will take from forty minutes to an hour to pass through the first inch after suspension, and many are so sluggish in their action as not to indicate any change in less than twenty minutes.

This unnecessary contraction is very frequently the cause of entirely stopping the action of the barometer, as the minutest particle of foreign

matter, or even the oxidation of the mercury itself, which, as an impalpable powder forming on the surface of the mercury in the cistern on moving the barometer, is displaced, and this in its ascent to float on the top of the mercury chokes and closes the fine bore of the tube hermetically, rendering the instrument perfectly useless; and this is often not found out till the ship has left for sea. A barometer, therefore, acting well till disturbed, may be quite useless afterwards.

The fourth named error is also one of great gravity; and for this error low priced manufacturers are far more to be censured for their culpability than for their ignorance or carelessness—the size of the cistern is reduced to enable them to save a quarter of a pound of mercury. This great desire to cheapen instruments is most serious, as the indications of such instruments are absolutely deceiving, and at a time when the changes are of vital importance to the sailor. In many such barometers the mercury will not fall below, even if so low, as 29 inches, although a standard at such times may read 28.5 inches, or even less. Nor will such an instrument show any change till the mercury rises above 29 inches; that is, the barometer says the mercury is stationary and steady at all times of the greatest phases of storms, and when every change should be instantly known by the sailor.

It is therefore not to be wondered at that some master mariners hold the barometer in little esteem if supplied with instruments of this class. Mr. Pastorelli told me that he heard a captain say that he had the barometer removed as it occupied some valuable space which was required for another purpose, and on arriving in the Port of Liverpool, that very instrument was found broken in an obscure nook of the ship. This is a sad illustration, and proves the absolute necessity of improvement in the make of these instruments. By using large cisterns, tubes of proper capacity, scales which are known as contracted scales, chemically clean tubes, pure mercury, and properly contracted bores, instruments can be made which shall read within 0.01 or 0.02 inch at every part of their scales, when compared with a standard barometer, and they ought, too, and can be sold at a moderate price.

The contraction of the tube in a marine barometer ought to be carried only so far as to allow the utmost freedom of action of the mercury without pumping.

When the ship is in a heavy sea,—when first suspended,—the screw at the bottom of the tube being withdrawn as far as possible,—the mercury should fall in the tube through the first inch in 40 seconds to 60 seconds. It should fall through the second inch in less than two minutes, and should be at its true reading within or about 15 minutes from the time of first suspension. Such an instrument, however quickly atmospheric changes may be taking place, will take up its true readings within 0.01 in. within one or two minutes, and this degree of accuracy is practically correct. On removing such an instrument before packing, it should be taken down without touching the screw at the bottom and inclined with its cistern downwards, at an angle of 45° to 60°; the tube will be filled in this position in three or four minutes; then hold

the instrument horizontally, and drive the screw at the bottom nearly, but not quite, home. With these precautions, the instrument will continue good for many years—in fact, till broken. During the last few months I have had frequent interviews with Mr. John Browning, of 111, Minories; Mr. F. Pastorelli, of 208, Piccadilly, and Messrs. Negretti and Zambra, of 1, Hatton Garden, who have undertaken to make marine and upright barometers of this character for my examination; and I have also undertaken to examine every one made by these makers, and to give a certificate with every instrument which complies with the above conditions. This will, I think, effectually meet the difficulty to which I have referred.

I feel confident that if our seamen had been provided with truthful instruments during the fearful storms of Wednesday the 22nd^o November last and on the Friday following—the storms of those two days and nights would not have proved so disastrous as they did to life and property.

In corroboration of my remarks, I may mention one or two cases. Some four or five years ago Her Majesty's steamer *Porcupine* was cruising off St. Kilda, in the Hebrides. Captain Otter, R.N., carefully observing the gradual fall of the mercury to the extent of $1\frac{1}{4}$ inch between 8 a.m. on one day and 3.26 a.m. on the following day,* at once ordered his ship to be made as snug and tight as possible. The hurricane at the latter hour burst out with fearful violence, swept off the little island nearly the whole of the agricultural produce of the poor people, and caused lamentable havoc amongst the shipping and fishing-boats that happened to be out in those seas at the time. But the *Porcupine* weathered out nobly the storm; and in lieu of being in a thousand pieces, the good ship was engaged a few days afterwards in a mission of mercy in bringing food to the poor islanders.

* The following account of the reading of the barometer on the occasion in question cannot fail to be interesting as showing clearly the certainty by which coming weather is indicated by this valuable instrument:—

1860.	h.	m.	inches.
October 2.—	8	0	a.m. 30.32
	8	0	p.m. 29.75
	8	15	p.m. 29.70 wind South
	8	45	p.m. 29.62 S.S.W.
	10	30	p.m. 29.34 S.S.W.
	11	0	p.m. 29.26 S.S.W.
	11	45	p.m. 29.22 S.W.
October 3.—	0	15	a.m. 29.16 S.W. heavy squalls.
	0	45	a.m. 29.10 S.W. ditto.
	2	0	a.m. 28.96 S.W. ditto.
	2	40	a.m. 28.87 S.W. nearly calm.
	3	20	a.m. 28.87 S.W. westerly.
	3	26	N.W. hurricane began.
	5	30	a.m. 29.52 North, N.N.W. gale.
	6	10	a.m. 29.65 N.N.W.
	7	15	a.m. 29.55 North, nearly calm.
	Noon		29.87 N.W., N.W.b.N.
	2	30	p.m. 29.87

I am sure that every assistance will be cheerfully rendered by the National Lifeboat Institution to save life—whether by ships' lifeboats, seamen's life-belts, fishing lifeboats; or, lastly but not least, in its great and good work, by helping the sailor on board ship to possess a truthful and cheap barometer—a scheme which is indeed only an extension to the sea, of the coast barometer system of the Institution; and thus prevent, as far as possible, by timely warnings on board ship, the necessity of calling into use the last but most glorious assistance—the services of the lifeboat itself.

JAMES GLAISHER.

Blackheath,, 1st December, 1865.

[A palpable instance of the fourth source of evil occurred within our own knowledge to the disgrace of our manufacturers of cheap barometers. A few years ago a surveying party from one of H.M. ships at Tenerife had to visit the peak for the purpose of obtaining observations for its height. The party set out with a barometer of one of our English makers, and were accompanied by a party of French officers with the same object, who of course had their own barometer made at Paris,—and much interest was felt by both to see what would be the result of their observations. It was unfortunate for the English part of the expedition, for on gaining a station pretty near the summit, the officer charged with it on placing his instrument in position with the necessary care, found to his astonishment that the mercury remained stubbornly fixed at about a couple of inches below the usual height on the scale—between 27 and 28 inches—and nothing would get it lower.

This was at once a source of disparaging remark on our English tradesmen by the French officers while they were using their own beautiful instrument with much satisfaction. On such expeditions it behoves our officers to look to their tools,—for we have abundance of proof that our English makers are not to be trusted.—ED.]

THE JAMAICA NEGROES UNDER THE LATE GOVERNMENT.

Our first three numbers of this volume have shown some tolerably clear proofs of the treatment which, under the alleged rebellion, the unhappy negroes of Jamaica received at the hands of officers and men of the Royal Navy. As we have already said they are but a trifling proportion of what has really been done in that way by the army and navy! The whole matter is too disgusting for consideration and too serious for comment. Insult, mockery, and cruelty has been added to injustice, in all of which the weak have suffered from the hands of the strong!

The following will illustrate the treatment which the negro has received from the late self-destroyed government of Jamaica, and we

print it to forward the cause of truth, in compliance with the wish of the writer :—

Grange hill, Jamaica, Jan. 6, 1866.

Dear Sir,—While deeply deploring the hideous massacre of the authorities in the Court house at Morant Bay, and the still more hideous massacres of the unarmed and helpless inhabitants, I cannot but rejoice that this event has brought about that change in the government for which I have been praying and waiting during many tedious years. I have lived in this island during the last eighteen years and have never had but one opinion about its government, which has been as corrupt, immoral, and oppressive as any which has ever existed on the face of the earth. I have no patience to read what the *Times* says about the advantages the negroes have enjoyed in Jamaica. They have never had the slightest voice, direct or indirect, in the legislation or government of the country; and the whole influence of the negro-hating, slavery-loving oligarchy which has ruled us, has been openly and avowedly directed to the impoverishing of the negroes, in order that they might be able to compel them to work at their own rate of wages. This was the object of high import duties on the necessaries of life, and of coolie immigration, which, of my own knowledge, I affirm to be a most atrocious form of the slave trade and slavery, expressly designed to lower the wages of the free negroes.

Governor Eyre prosecuted me in 1862 for a libel on the government, and on the planters as a body, for saying in the newspaper that the coolies were “cheated, starved, flogged, and murdered;” but before the trial came on he withdrew the prosecution, because “some of my charges had been already substantiated.”

In 1864 I was summoned to the bar of the House of Assembly for publicly accusing the Immigration Committee (before which I had been examined) of issuing a false report, and of corruption in taking the evidence. I travelled 150 miles in three days, which in this country is no small undertaking, in order to be there in time; but on arriving, I found that they had adjourned over the day for which I was summoned. I thereupon published a letter announcing my arrival, and my readiness to prove my charges at the bar of the House, and “chaffing” them with their want of good manners in “giving me a special invitation, and then not stopping at home to receive me;” but on their next meeting, when Dr. Bowerbank moved that I be brought to the bar, the house refused to let me appear, on the ground that the warrant was spent. I tell you this in order to show how contemptible, as well as corrupt, has been the government of this colony.

I attribute the existing poverty and demoralisation among the people of my district in a great measure to the practice which the estates adopt of moving the negro villages periodically, in order to prevent the labourers from profiting by the bread-fruits, cocoa-nuts, and other trees of slow growth which they plant around their dwellings. Every village of the estates in this district, of 5,000 inhabitants, has been

moved within the last ten years ; and, as the people have to pull down and rebuild their cottages at their own expense, they have got into a way of erecting miserable little huts, in which the poor things are compelled to live, like pigs in a sty—old and young of both sexes sleeping altogether. Great numbers of them have left the estates altogether, and bought or rented land in the mountains ; but as they are there out of the reach of all civilising influences, it is not likely they can advance either in wealth or morals.

Two or three years ago, an overseer in this neighbourhood, being displeased with a woman in the cane field, who opposed his proposal for a reduction of wages, immediately took a team of oxen and a lot of men with axes, and went to her house, in which lay her husband, a feeble old man, and telling him to move out, he set the men to work at the posts with their axes, then fastened the oxen to the corner of the house, and pulled it down. It was one of the better kind of houses, and had been built entirely by the man himself, but on the estate's land. I consulted with the Rev. John Clarke, Baptist missionary of Savanna-la-Mar ; and we decided, that as several outrages of this kind had recently occurred, we would try if we could put a stop to them by an appeal to the law. We, therefore, directed the man to summon the overseer and his associates before the magistrates, and we attended to watch the case. They were fined £3—being about four or five shillings each—but they at once appealed ; and at the next circuit court the decision of the magistrates was reversed by the judge ; on what grounds I do not know. So now every labourer living on a sugar estate is liable, according to this decision, to have his house pulled over his head without a moment's warning, at the will of the overseer. Is it surprising that, under such circumstances, neither the estates nor the labourers can prosper ?

In my attempts to protect the coolies I have, on three several occasions, had overseers summoned before the magistrates for cruelly flogging them ; but in each instance justice failed. The last case occurred about six months ago, and I wrote an account of it to Governor Eyre, through his secretary, finishing my letter in these words :—"Mr. Garcia (the sub-agent of immigration) then told the coolie that he must go back to the estate and work as usual. The man said he could not go back, as the overseer, after flogging him, throwing all his things out of doors, and keeping him locked up a whole day without food or water, had threatened that if he came to the estate again he would bring him up at the St. Paul's Court, and have him sent to Lucrea Gaol. But under the laws of this free and Christian country that poor stranger is liable to imprisonment for not being on that estate, and no other person can give him employment under a heavy penalty ; indeed, the mere fact of his having complained to me against an overseer is a complete bar to his being employed on any other estate."

"So, now, as far as the humane laws of this country are concerned, that poor man and his wife and two children must be added to the large number of cheated, starved, flogged, and murdered coolies, whose

blood cries to heaven for vengeance, on all who had any hand in bringing them here. Mr. Garcia says he shall still make the overseer appear; but I do not intend to take further steps in the matter, as my interferences only makes it worse for the poor sufferers."

"A long experience has taught me that it is impossible to get justice in this country for the poor, either native or foreign, against an overseer. I myself have tried on several occasions, and have always failed. I do not attach any blame to the governor on this account, because I know that so long as that accursed tyranny, the House of Assembly, is suffered to exist, his excellency is as powerless to protect the oppressed as I am. I shall henceforth confine my appeal to the Supreme Governor, who I know, has both the power and the will to avenge the poor."

I now humbly thank God that I have not appealed to Him in vain, and that He has stretched forth His hand and scattered, as in a moment, that detestable oligarchy, which, for full 200 years, has bought, sold, flogged, robbed, maimed, tortured, and debauched the poor black people of Jamaica. When the Times editor describes the blacks as a blood-thirsty race, filled with hatred of the white man, he not only betrays his entire ignorance of them, but he wickedly ignores the whole history of Jamaica, both past and present. For every act of lust or cruelty committed by blacks on whites, a thousand such have been committed by whites on blacks. I never heard of an indecent assault by a black man on a white woman even in times of insurrection; but can anyone in Jamaica say the same of white men and black women? The licentiousness of white men in Jamaica has been, and in many parts is still, as boundless as it is unblushing. Every attempt to get a bastardy bill through the House of Assembly has failed, simply because honourable members were unwilling to cut a stick which they knew would be used to flog their own backs.

The laws as well as the records of Jamaica are such as should make every honest Englishman blush with shame for the savage barbarities his countrymen are capable of when left to the exercise of their natural propensities, unrestrained by any fear of public opinion or the law. If the Times editor will consult a little book called "Lights and Shadows of Jamaica," published by the Hon. Richard Hill, of Spanish Town, he will there find authenticated cases of torture and mutilations perpetrated by whites on blacks—not on the dead but on the living—not in the heat of warfare, but in cold blood, and under the sanction of law, such as make those which, "it is said," were perpetrated at Morant Bay sink into insignificance by comparison. Nor are such things only memories of the past. The torture and murders committed during the last four or five years, on the poor coolies, by the ill-usage and neglect of the governing class of this colony, are as a mountain to a mole-hill compared with those at Morant Bay on the 11th of October.

The negroes are as loyal and peaceable, and would be as industrious and virtuous as any people in the world if they were wisely and honestly governed. I have lived seven years in my present residence;

I have a wife and eight little children; there is not another white man within four miles of us. We are surrounded by thousands of those people whom Mr. Radcliffe in his infamous letter describes as "panthers," most of them in deep poverty, and yet I often lie down at night without remembering to look whether my doors are shut, which is more than the editor of the Times would venture to do even in civilized England; and I have never had anything stolen off my premises except on one occasion, and afterwards found out that the culprit was a gaul-bird from a neighbouring parish.

Petty larcenies of growing produce have been very frequent of late, but this will be the case in any country where the bulk of the population are at starvation point. I have had a sick club in operation among the negroes for the last eleven years, and two days ago we held our annual meeting; and, on examining our accounts we found that in the first ten years the contributions of the members had amounted to £1,027, that we had spent £740 in medical attendance and mosey relief for the sick members, and had the balance in the savings bank applicable to the payment of burial fees. We found, too, that our death-rate for ten years had been just one per cent. per annum—a fact for those insurance companies who fancy the climate of Jamaica is unhealthy. After the meeting we all—that is, I and about 150 "panthers"—sat down to a substantial meal, very tastefully spread; after which we had music and singing, and altogether a rather jovial afternoon, considering the gloomy times. And (although I know the Times would not believe it) I felt no more fear of being devoured than did Van Amburgh in the tiger cage, or Daniel in the den of lions.

Not only have the negroes no antipathy to the white race, but they have a natural respect and liking for them; and although they have known white men chiefly as their oppressors, I believe they would regard the departure of "bukra" from the island as a calamity. They have a personal love for the Queen, whom they regard as the giver of their freedom, and their defender from their oppressors. I saw one very touching instance of this at the time of the arrival of the sad intelligence of the death of the Prince Consort. Now that her Majesty has assumed the government of this island, I believe that peace and prosperity will prevail in it; but the change must be complete if it is to be effective, and there must be a clean sweep of Jamaica magistrates as well as Jamaica legislators.

There is something in slavery which gives so thorough a shock to the moral system of all who can bring their minds to approve its abominations, that they are ever after incapable of distinguishing between right and wrong, or of exercising any other than despotic power where black people are concerned. It was a great mistake to leave a country of free blacks in the hands of a pro slavery government; any reasoning person could have foretold the evils which have followed. If the Assembly had been abolished in 1834 instead of 1865, the advantages of freedom over slavery, even in the financial aspect, would have been long since patent to the world. No Jamaica man must have

anything to do with the government until all traces of slavery have been obliterated.

I would not be understood to mean that negroes are better than English labourers would be under like conditions, but they certainly are not worse. All men are alike bad; it is only early training and the grace of God which makes the difference in any of us. I think, however, that the lowest class in Jamaica, in some respects, contrasts favourably with the lowest class in England; and now that the era of freedom is about to be inaugurated in this island, I fully expect that its people will rapidly advance in wealth and civilisation.—I am, &c.

HENRY CLARKE,

Island Curate of Trinity, Westmoreland.

*To L. A. Chameroovzow, Esq.,
27, New Broad-street, London.*

SUCCESSFUL DEPOSIT OF THE ATLANTIC CABLE.

The great work is completed that joins England and America in friendly converse. Once more, and more securely than before, has the great fact been achieved of placing this country within speaking distance of our friends of the United States of that country. Let us record the important fact in the words of the telegraph itself from Newfoundland:—"Our shore end has just been laid, and a most perfect cable, under God's blessing, completes telegraphic communication between England and the continent of America. I cannot find words to express my deep sense of the untiring zeal, and the earnest and cheerful manner in which every one on board the *Great Eastern*, from the highest to the lowest, has performed the anxious and arduous duties, they in their several departments have had to perform. Their untiring energy and watchful care night and day for the period of two weeks required to complete this work, can only be fully understood and appreciated by one who like myself has seen it. All have faithfully done their duty and glory in their success, and join with me in hearty congratulations to our friends in England who have in various ways laboured in carrying out this great work." Such was the message by which the final success of the great enterprize of laying down the electric cable across the bed of the Atlantic ocean was announced, from the cove* called Heart's Content, in Newfoundland, on the 27th of July last.

When the various difficulties of the work are considered, the accidents to which it is liable from so many sources, the failure already taken place, and the uncertainty of the weather always, the completion of it may well be considered a source of congratulation not only to all concerned, but generally speaking to the countries which are thus tied

* In our volume for last year is a plan of this cove.

together by the magic line of electric communication which it is still more satisfactory to be assured is not only perfect in its continuity but the speed of the messages is much increased "since the surplus cable has been cut off." This, in fact, means that the messages have no longer to traverse through the numerous coils on board the *Great Eastern*, but have now to make their progress from the shore of Newfoundland to that of Valentia (and *vice versâ*), directly across the Atlantic.

We, who from the first anxiously watched the progress of this great undertaking, who have felt the severe treatment which the former cables have received, and have observed with sincere regret their failures (as our own pages can testify), and who have watched from day to day the steady progress of this last attempt to its final and successful conclusion, now that we see the great end attained that the two countries are placed within a few minutes of speaking distance of each other, we offer our sincere congratulations on the event, with our hearty good wishes that the great object of the promoters may be realized, and continue in unabated and successful action.

Let us now turn to the work itself. We annex herewith the positions of the *Great Eastern* every day at noon, on her voyage across the ocean, with which our readers can trace the cable on any chart of the Atlantic ocean. These are as follows, going from Valentia to Newfoundland, at the time of noon at the ship of every day:—

July	Lat.	Lon.	D.	P.O.	July	Lat.	Lon.	D.	Miles
Fri. 13	Started from Valentia.				Fr. 20	51 36	32 57	830	938
	°	'			Sa. 21	51 18	36 1	952	1074
Sa. 14	52 0	14 0	135	144	S. 22	50 48	39 14	1075	1207
S. 15	51 0	17 29	263	283	M. 23	50 16	42 16	1197	1345
M. 16	52 6	20 36	378	420	T. 24	49 30	45 21	1319	1480
T. 17	52 15	23 48	495	557	W. 25	49 30	48 11	1430	1610
W. 18	52 1	26 37	600	682	Th. 26	48 45	51 16	1558	1744
Th. 19	51 54	29 39	718	811					

Friday 27th, arrived in Trinity Bay, cable landed, at 8.43 P.M.

In the foregoing statement, the column D. is the distance run by the ship, in nautical miles, and P.O. expresses the number of miles of cable paid over or laid down from the ship.

The landing of the cable and the proceedings are thus announced at Valentia, being, we believe, the first message transmitted by it from Newfoundland.

Valentia, July 27.

This evening, at about five o'clock, English time, the cable was completed between Europe and America. Conversations and messages have been carried on all through the day, until word was sent to cease signalling, as they were about to make the splice with the shore end at Trinity Bay. This was effected soon after dusk with us. Mr. Latimer Clark is now testing the cable, previous to accepting it from the company. These tests will occupy all night.

It was also stated :

Valentia, July 27.

Shore end landed and splice completed at 8.43.

Messages of congratulation passing rapidly between Ireland and Newfoundland. Insulation and continuity perfect. Speed much increased since surplus cable has been cut off.

And the next message was that already quoted in a preceding page; and the next message we have is—

Already the line is inundated with messages, and many hundred pounds worth came through from Europe on Saturday afternoon. The message of the Queen to the President has, of course, taken precedence of all. The international greeting is as follows:—

From the Queen at Osborne, to the President of the United States, Washington.

“The Queen congratulates the President on the successful completion of an undertaking which she hopes may serve as an additional bond of union between the United States and England.”

The following is the reply of the President of the United States :—

“July 30, 11.30 A.M.

“The President of the United States acknowledges with profound gratification the receipt of her Majesty’s despatch, and cordially reciprocates the hope that the cable that now unites the eastern and western hemispheres may serve to strengthen and perpetuate peace and amity between the Government of England and the Republic of the United States.”

We may also add the following from her Majesty’s speech, as delivered in the House of Commons, on the prorogation of Parliament :—

“Her Majesty has great satisfaction in congratulating the country, and the world at large, on the successful accomplishment of the great design of connecting Europe and America, by the means of an electric telegraph. It is hardly possible to anticipate the full extent of the benefits which may be conferred on the human race by this signal triumph of scientific enterprise; and her Majesty has pleasure in expressing her deep sense of what is due to the private energy which, in spite of repeated failure and discouragement, has at length, for the second time, succeeded in establishing direct communication between the two continents. Her Majesty trusts that no impediment may occur to interrupt the success of this great undertaking, calculated, as it undoubtedly is, to cement yet closer the ties which bind her Majesty’s North American colonies to their mother country, and to promote the unrestricted intercourse and friendly feeling which it is most desirable should subsist between her Majesty’s dominions and the great Republic of the United States.”

The next important piece of intelligence concerning the cable is the successful laying of that from Newfoundland to Cape Breton Island, across the Gulf of St. Lawrence, thus completing the chief supplementary part to connect it with Nova Scotia.

Looking on the cable as we may safely do, as being permanently established, we shall take on ourselves to personify John Bull himself, and record his congratulations in the following lines of Mr. George Smith, a veritable English name, which lines appear in a recent copy of the *Western Morning News* :—

THE ATLANTIC CABLE.

I bid thee hail, friend Jonathan,
Thou younger brother mine,
And drop, as erst, I promised thee,
A true and friendly line ;
And with it send a fervent wish,
That Britain long may be
In league with thee for truth and right,
And holy liberty !

The quarrels in thy family,
Thank God are now passed o'er ;
And men, once slaves to fellow men,
Shall be thus slaves no more :
And I, with thee, will ever strive
To keep this flag unfurled,—
“ Commerce and Peace between the States,”
And pardon for the world !

Oh, may there never, never flash
Along those magic lines,
The words that blight a nation's hope
With lurid war's dread signs !
But, as the spell of science binds,
Our land so close with thine,
So may our hearts friend Jonathan,
In peace for aye entwine !

We shall complete this notice of the great work, with the following sensible remarks from the *Daily News* :—

The Atlantic cable is a sign and a monument as well as an organ of the civilization of our age. We see in it gathered up and completed the results of the wonderful group of mechanico-chemical sciences, combined with a triumphant feat of engineering. The most penetrating and sagacious minds of this and the two last generations have toiled patiently in order that we might be able to triumph over space, and speak, as friends with friends, to brethren in another hemisphere. Confident that in the ordination of Providence no knowledge is really worthless, no honest search for it vain, Oersted has experimented, and Ampere generalised, and Faraday discovered in the region of electrical and magnetic inquiry, freely giving up the fruits of their labours to be adapted by other skilful men to the wants and uses of mankind. They could not foresee, and they did not ask to be able to

forsee, the infinite applications which might be made of the truths they found out, when, operating upon the facts which had accumulated in the course of experience, they ascertained the relations which bound them together, and when, declaring the laws of those relations, they organised knowledge, and raised it into science. It is well at such a moment as this we should not forget what the disinterested man of science, working alone and accepting truth as his greatest reward, is constantly doing for society. But there are others whose claims to admiration are nearer and more obvious. When Cunæus discovered the properties of the Leyden jar, and the electric shock which it produced was an object of curiosity and terror—Muschenbroek declaring that he would not take a second one for the kingdom of France—Boze magnanimously wished that he might “die by such a shock, and have the circumstances of the experiment recorded in the *Memoirs of the Academy*.” Professor Richman, without having made any formal vow, was killed in the course of an electrical experiment. Sacrifice and risk have not in this instance taken that appalling form. It is the estate rather than the body that we place in peril, and it is well-known that considerable fortunes have been ventured in this undertaking. It is very easy for bystanders to say that in such an enterprise it would be criminal to yield to discouragement; but it must be remembered that attempts to lay a working Atlantic cable, reckoning from the first endeavours to form a company, have extended over twelve years, and have been attended with losses and disappointments that might dishearten the most resolute. To Mr. Cyrus Field, who first took hold of the enterprise as a practical work, and who has stood firmly by it to the present moment, must be assigned the first place, where so many are meritorious. When Mr. Field first undertook to organise a company of capitalists, he did so as one who was prepared to go into the project with the fortune which he had acquired among his neighbours as a merchant. His example, his unbounded faith, and his unceasing devotion and energy, which led him to cross the Atlantic thirty-two times on the affairs of this telegraphic line, would have deserved to be held in admiration, even if they had not been rewarded with success. He was the soul of the enterprise, even at times when some doubted whether its life had not departed. If there is any one well entitled to share the credit with him it is Mr. Glass, of the Telegraph Construction Company, who joined the enterprise at a later stage, and who has directed the arrangements under which this new line has been laid down. Mr. Glass’s organising capacity, decision, and promptitude eminently fitted him for such a work, gave unity to the plans, and inspired all concerned in executing them with the confidence that conduces so much to success. The names of others, worthy to be associated with these, will have to be mentioned when the time comes for making up the roll of honour. The lustre of the enterprise is sufficient to reach all who were connected with it, and we trust it may be increased by the continuance of the cable as a line linking two great communities together in bonds of friendship.

HOMEWARD BOUND.

PART I.

(Continued from page 417.)

Or glance we forward by the vessel's prow,
 The rapid dolphin darts beneath her bow
 Incautiously ;—for oft the expert harpoon
 With deadly aim impell'd, his life too soon
 Is forfeited ; and on the deck he lies,—
 (Another proof of seaman's enterprise ;)
 In leaving life, those beauties to display,
 That oft have been the theme of poet's lay.

Or let us to the Naturalist now turn,
 Contented he far smaller prize to earn :
 The ocean's surface see he only claims,
 The small reward to yield of all his pains :
 A net of gauze upon that surface thrown,
 Encloses shells which he is proud to own ;
 Shells so minute as only to be seen
 With microscopic aid, and yet, I ween,
 Vyeing in beauteous colours, and in form
 With those of Nature's grander work ; and warm
 From her own mould ; hereafter to become
 The graceful Nautilus, when mature and come
 Her mimic sail to spread, to live her day
 Of dreamy life, and then to pass away !

Such are the pastimes which we oft renew
 From day to day as we our course pursue ;
 Constrain'd full oft t' admire the splendid blaze
 Of light that's shed by sun's of tropic rays ;
 Unknown to those who have not cross'd the line,
 Where sun's are vertical, and ever shine
 With beams resplendent, never to be seen
 Where twilight reigns,—a dismal purblind queen !
 Within the tropics twilight is unknown,—
 Belonging but to extra tropic zone.
 Thus, notwithstanding homeward we are bound,
 Anticipating scenes where joys are found ;—
 For each day's sun, as sinking in the West,
 And sea with darkness join'd in nightly rest,
 Where twilight lends no terrors to the wave,—
 All these recall the cherish'd favourite stave,
 Which when combin'd with love's harmonious reign,
 These words renew with music's sweetest strain :—

When the sun sinks to his coral caves,
 When winds sleep on the dark blue waves,
 When th' ocean bird is gone to rest,
 And ling'ring twilight dies in th' West;
 When tapers of Heav'n appear on high,
 And small white clouds float slowly by,
 When the moon rises over the sea,—
 Then Mary, my love, I'll come to Thee!
 So sang sweet voices 'mid the charm of Home,
 Forgotten not, though distant we might roam;
 So may they oft repeat those sounds again,
 On our return from this drear wat'ry plain.

As oft as darkness and the sea unite,
 Under the sable canopy of night;
 So Heavenly tapers, shining stars well nam'd,
 Prove ample source for contemplation fram'd.
 In southern hemisphere, the southern cross
 Forms those which oft the seaman's thoughts engross;
 Apart from others in clear space they stand,
 Useful at sea as well as on the land;
 To voyager, seaman, they lend good aid
 To find their places under nightly shade:
 Lost to the North, with pointers to its pole,
 The South reveals the Cross to save the soul!
 Glorious reflection for the son of man,
 Or humblest sailor since the world began.
 These occupations on the lonely main,
 With many more unnoticed that remain,
 Weather admitting, are enough t' employ
 Each one among us, from grown man to boy.
 And should bad weather not allow this train
 Of duties to be done, we turn again
 To others, which ship's reckoning concern,
 Where chiefly navigation has its turn:
 With such pursuits as books and letters find,
 To cheer the spirits and employ the mind.

Our voyage to the Cape, tedious and long
 Was likely to be; South-West winds are strong
 And in our teeth, too, off the Cape of Storms;
 As Diaz found, because perhaps it forms
 Of Africa, the most projecting part
 Towards the South, where heavy seas impart
 Mischief and trouble to the ship that sails
 To East or West, in furious winter gales.
 Yet gales or calm, are much about the same
 To those between decks, busy at some game,
 Or chess, or drafts, or book of various name.

What is it that occasions so much mirth,
 And joyful merriment in the middy's berth?
 'Tis some old scrap of paper obsolete,
 Though old 'tis fresh as ever, and a treat
 To those by dim light daily doom'd to meet;
 And nightly too, with which they're glad to greet
 Each one;—a careful scrap-book, well preserved,
 Supplies fresh store of treasure unreserved:
 An extract from the British Queen explain'd
 All this; which something nautical retain'd,
 And thus ran lines, which middy's glee had gain'd.

“ In days of yore, when Virgil wrote his lyrics,
 “ And deities were fond of metaphysics;
 “ Æolus kept the winds, and Juno would wear breeches,
 “ She thus the God most coaxing beseeches.

“ Æolus you know I hate long speeches;
 “ My husband, Jupiter, the king of heaven,
 “ To you, my excellent good friend, hath given
 “ Dominion o'er winds, tempests, clouds, and all,
 “ To calm the waves, or raise them by a squall:
 “ Now on the sea there sails the man I hate,
 “ Carrying off his furniture and plate;
 “ Summon your fiercest whirlwinds, work your bellows,
 “ Sink all his ships, and drown me all those fellows;
 “ Twice seven prime casks of Meux' double X ale
 “ Lie in my cellar, mellow, fat, and pale:—
 “ The strongest, fullest of these casks will I
 “ Bestow on thee, to wet thy lips when dry!
 “ Such beer, so rich, so unctuous, sure will please,
 “ And give a relish to thy bread and cheese.

“ To whom thus Æolus replies:—'Tis thine,
 “ Oh, Queen, to order,—and to obey is mine!
 “ Thou didst my kingdom, and my power bestow,
 “ 'Twas thou who first did teach me how to blow;
 “ To thee my bellows, and my crown I owe!

“ Thus having spoke he struck the mountains side,
 “ Swiftly the winds, in overwhelming tide,
 “ The stormy East, the West, the South, the North,
 “ Whistling through every vent, with joy burst forth,
 “ On frighted sea, uncheck'd they raging roam,
 “ And lash the angry billows into foam!

“ Then creaked the decks, masts bent, ships heel'd, and then
 “ Was heard the oaths, and curses of the men;

‘ O’er the spoil’d sea, the murky clouds hung close,
 ‘ So dark, the pilot could not see his nose;
 ‘ Flash’d the fork’d lightnings, and the thunder’s war,
 ‘ Shook the spent ship, while wave on wave broke o’er;
 ‘ The screaming sea-gulls seemed in scorn to mock her,
 ‘ And all hands turn’d their eyes on Davy’s locker!

“ This hubbub puts the hated man in funk,
 “ Quickly he bolts a piece of hard salt junk :
 “ Oh thrice and four times is he bless’d, he cries,
 “ Who in his bed-room comfortably dies!
 “ To brave the tempest, all were found took weak,
 “ Some were capsiz’d, and others sprung a leak.

“ At length this uproar and strange hurly burly,
 “ Awoke old Neptune, who with looks most surly ;
 “ Popp’d up his head above the troubled ocean,
 “ He sees the elements in wild commotion ;
 “ Our hero’s fleet scatter’d o’er the main,
 “ The sailors struggling ’gainst the storm in vain.
 “ Knowing at once ’twas one of Juno’s freaks,
 “ He call the East and West winds, and thus speaks :
 “ Is it your birth that leads you thus to dare
 “ My power? presumptuous bla’guards as you are,
 “ To veil the skies with your vile clouds and fogs,
 “ And without ‘ by your leave,’ rain cats and dogs ?
 “ By Jingo, I’ll—— but first we’ll stop this fun,
 “ Then you shall dearly pay for what you’ve done,
 “ Be off! ond tell your windy bellied king,
 “ The sea’s not his, nor Trident, no such thing ;
 “ But mine! Let Æolus give up this tone,
 “ Shut up his bellows, and let me alone ;
 “ Tell him to be contented with my rocks,
 “ And shut his winds up under patent locks.

“ He spoke and bade the ocean cease from riot,
 “ Restor’d the sun and bade the clouds be quiet,
 “ Cimotheï and Triton, striving, cast
 “ From off the rocks, the ships that had stuck fast ;
 “ Neptune himself with his potato fork,
 “ Lends them a hand, and so they make short work.
 “ He makes all right, then o’er the tranquil stream,
 “ Glides in his easy car propell’d by steam.

“ As when two fishfags fierce contention wage,
 “ On either side, while shouting mobs engage,
 “ And mud, with compliments, is freely flung,
 “ Rage supplies weapons from the vulgar tongue.

" Then on a sudden, if the mob behold
 " The parish constable, their zeal grows cold,—
 " They look, stop short, and greet him with a laugh,
 " He calms their minds, and soothes them with his staff!
 " So the contention of the billows ceased :—
 " The father of the waves beholds well pleas'd
 " The calm ; and in his car of ten horse power,
 " Skims o'er the waves at twenty knots an hour ! "

'Tis very likely fancies such as these,
 By ancients done, or not, upon the seas,
 (A travesty in fact on deities)
 Are calculated very well to please
 Youthful aspirants of the naval corps,
 (Besides their elders who may be on shore)
 In middy's album's entertaining lore :
 The leisure, too, perhaps that these can find,
 Has room for purposes of every kind.
 For, those who lean on occupation's arm,
 Know well, variety has its charm !

Assisted by the current, we progress'd
 With wind unfavor'd, daily to the west ;
 And how propitious to these constant wants
 Of seamen following their daily haunts :
 Let not the navigator e'er complain
 'Gainst wand'ring currents on the restless main :
 All-wise Providence means them for his good,
 As they're acknowledg'd when they're understood.
 Currents and their *contras* are really meant,
 To forward navigator's full intent !
 When one runs this way, and another that,
 It is but nature's compromising act :
 For when a mass of water thus is hurl'd
 From one part to another of the world
 'Tis but the redistributing of weight,
 That serves to keep th' equilibrium straight :
 The counter current we have here enjoy'd
 Must be intended to complete a void
 Somewhere, and setting too against the wind
 Produces waves of an enormous kind
 Which (it is said) are found of every shape
 By navigators off this stormy cape !
 And more than this, for even worse than all,
 Are those, of which, the sides are like a wall !
 Doubtless the elements can account for this,
 Though laws supreme, to man may seem amiss.
 Currents 'tis thought are but the effect of wind :—
 Erroneous thought ; for seamen sometimes find

The current first, and this in quiet calm,
 When winds are absent, nought to portend harm,
 Sea's surface smooth, to banish all alarm.
 'Tis thus by faithless elements betray'd,
 And stealthy currents least suspected aid,
 A vessel's lost by drifting on a shoal;
 Then next day comes the wind, perhaps a whole
 Gale, and from the same quarter far away
 As came the current of the previous day!
 Currents like these to seamen are well known,
 Yet not to all;—for some are not yet grown
 In ocean lore;—a theme these currents make
 That's much despis'd;—yet one for its own sake,
 That should receive th' attention that is due
 To education nautical and true:
 The currents of the ocean, let him learn,
 Whose thoughts, while young, unto that ocean turn.

(*To be continued.*)

LYING-TO IN A STORM.

As time rolls on, I have the satisfaction of remarking that my theories, on more than one subject, are correct, and at no distant period will overturn the old-fashioned ideas to which Englishmen so tenaciously cling, until overwhelming proofs of their fallacy are brought forward.

W. C. P. gives an excellent description (in the August number), of the saving of the *Pioneer*, when hove-to in a hurricane off the island of St. Paul's. If she had been fitted with engines, and they turned slowly a-head, so as to carry out the idea of "bowing the sea" she could not have withstood the shock of those awful waves under the lee of which the tired sea birds sought momentary shelter from the furious wind. I shall always be of opinion that if the machinery of the *London* had broken down when the gale commenced, she would now have been afloat.

W. C. P. is quite correct when he states that head sails are dangerous to heave-to under, because in addition to paying off the ship's head, their lifting, and consequently depressing power is highly dangerous. So much am I convinced of the necessity of avoiding carrying any sail in bad weather on a bow-line which has a lifting tendency, that in steam ships 350 feet long, I always, in a head sea, take in all fore and aft canvas which is before the foremast, although the engines may be going at full speed at the time. The loss occasioned by shortening sail is more than compensated by the easy

fashion in which the bow rises over a wave in lieu of passing through it.

I cannot agree with W. C. P., when he advances that all ships should have a storm maintopsail, ready to bend in bad weather. Either on board a man-of-war or merchant ship, in doubtful latitudes, storm sails *should always be bent*. The smartest topmen of the former find no easy task in bending a close reefed maintopsail in an ordinary gale on a dark winter's night, with the rain and sleet benumbing their strong fingers. On board a merchant ship the manoeuvre would be looked on as impracticable.

I strongly object to the useless practice of putting the helm hard a lee when the ship is hove to, as it cannot be of service when she is not forging a head. Some go so far as to lash it there, thus increasing the strain on the steering gear to a dangerous amount, and with the present mechanical appliances, accidents are generally more serious if they do occur than they were with the old fashioned tiller-ropes.

It has long been a subject of surprise to me that the officials of the Board of Trade allow iron ships to go to sea without being fitted with rudder-stops. As some one who is not cognizant of their use may read this, I will give a short description of them. On either side of the stern post a strong iron cleat is rivetted with the face bevelled off to an angle of 45° with the keel. On the rudder similar cleats are attached at the same height, so that in the event of the helmsman letting go the wheel, no strain will come on the steering gear (if it is properly fitted) when the rudder is close over on either side. I have seen an iron troop ship allowed to go to sea without such fitting. It is true that a vessel may run for years without an accident, but sooner or later the evil day comes. I should like to know if the late iron ship *Stalwart*, which foundered off the Cape of Good Hope, was so fitted, since to the breaking of her steering gear at the commencement of the gale, her subsequent loss may apparently be traced.

MERCATOR.

REMINISCENCES OF JAPAN,—*The late Operations of the Combined Fleets.*

(Continued from page 408.)

The ships had kept their fires banked up, and at the same time that the weather became worse a shot was fired, immediately followed by the fire of the ships. The batteries nearest to the ships opened their fire on the *Euryalus* and *Perseus* the only ships then within their range. This time the Prince of Satsuma threw down the glove, and it was he who gave the signal for battle.

Mooring being impossible Admiral Kuper determined to engage the batteries under steam. The *Perseus* was ordered to get

under way and to silence one of the batteries of Sakosima, which she vigorously fired on, while the *Euryalus* slipping her chain opened her fire also, the rest of the ships forming a line before the town, and as the few vessels which the Admiral had did not admit of guarding the prizes taken in the morning, the *Havoc* was directed to set fire to them. They were soon in flames, and the squadron advanced in line on the Japanese batteries, engaging them as the rain admitted, a cannonading the more dangerous to the English ships.

The firing, although an incessant rain was falling all the time, was well-sustained and was well-directed. In the height of the action the *Euryalus* separated from the rest of the ships, no doubt, from the violence of the wind, and was left alone engaging several batteries which kept up a slow fire on the frigate at five or six hundred yards, throwing a storm of projectiles. A gun which burst on board of her, killed and wounded some 20 men. A few moments afterwards a shot passed close by Admiral Kuper and killed by his side, the captain and commander, two of the best officers of the fleet. The English fire, directed against the masses in the batteries and on the town behind them, must have occasioned great havoc among the Japanese, but the bad weather prevented one from seeing this effect on the enemy. Nevertheless, when the *Euryalus* came abreast of the eighth battery, situated on a point of land, and which was the last to the southward, Kagosima was seen to be on fire in several places, and the wind that was blowing fanned the flames. The storm continuing with considerable strength the *Perseus* was seen in some danger, and as the squadron had made a deep impression by its vigorous attack, their former anchorage was resumed off Sako-Sima. But not before burning the large Loo Choo junks, and the principal buildings of Kagosima were in flames, as well as a large part of the town, including the large magazine of Prince Satsuma and his cannon foundry. An effect of which the Admiral had done about half, and also suffered the most.

The intention of the Admiral at first was not to leave his anchorage : but at a glance the environs of the bay appeared deserted, and in fact, there had been retreating going on to the heights of the island. Behind the trees and bushes which surrounded it, the Japanese had earthworks, occasionally throwing shot from them at the squadron. These preparations and the storm increasing, induced the Admiral to gain the entrance of the bay, so as to pass through the channel between the batteries. The Admiral determined on passing by Sako-Sima and the ships in passing these new batteries gave each of them their broadsides. The Japanese returned a weak fire without doing them any harm, and in the evening the ships anchored off the southern end of the island, and some days after requiring a supply of ammunition and provisions besides being wanted, the Admiral left the bay and repaired to Yokohama.

In the beginning of August, when the English squadron sailed for Kagosima a number of steamers were seen passing in the offing from the bay of Yokohama and making for the bay of Yedo. It appeared that they were conveying the Tycoon on his return from

Kioto to the capital. Something then had passed between the spiritual and the secular emperor of Japan. What was this? Had the premier perceived the aggressive policy of the Damios? If any resolution had been determined on in that august assembly it was preserved with the utmost secrecy. Some rumours were in circulation about a council at Yeddo after the return of the Tycoon, and where the Damios considered the recent measures of the supreme authority of Japan. At this council Prince Owaris, the chief of one of three families Gosweke had declared, it was said, that an appeal would be made to arms and that the high feudal functionaries should be required to desist from the daring practice which they had long pursued, of resorting to a condition of war, of purchasing arms, equipping soldiers and holding themselves ready for five years to wage war. Some days afterwards the two following circulars were transmitted to the chiefs of the police for the information of the inhabitants of Japan:—

To the inhabitants of Yedo and to all parts of Japan, to those who are acquainted with the use of the musket and the lance and sword exercise, to the *lonine* and inhabitants of the mountains.

If there are any among you capable of serving for the use of any kind of arms as above said, report yourselves to the governors of police, and they will engage you on the following conditions:

For picked men 400 itzibous and 200 bags of rice per annum.

For second class men 200 itzibous and 100 bags of rice per annum.

For all other men 120 itzibous and 70 bags of rice per annum.

To all those who are expert in the use of arms, muskets and cannon, sabres, lances, and all weapons of war:

If you will appear before us you will be engaged on very advantageous terms.

To judge from these documents the nature of the decisions come to at Kioto would be nothing less than pacific, and the first shot fired by the Prince of Nagato, even at the period of the conclusion of the above councils, fully justified this conjecture. One of the most powerful damios of Japan did not, however, hesitate himself to break through the period fixed for the resort to arms, and to forbid in the most brutal manner the approach of our vessels to his shores. Public rumours, indeed, added other details to this resolve. The Prince of Nagato in employing his batteries at Simonosaki, had something more in view than the closing of the inner sea. Placing himself thus at the head of the reactionary party, he accused the Tycoon openly of treason, or want of power to execute the orders of the mikado: in fact, his words, no less than by his deeds, proclaimed his desire to see the second chief officer of the empire unseated, and to take on himself the offices of generalissimo, and to restore the great persons of his ancestors. They had in former times large territorial possessions in Japan, but in consequence of wars with the Tycoons and their allies

they had gradually lost nearly all their land, reduced by the usurper Hiéas to the two provinces of Nagate and Sowoo with an annual revenue of about seven million francs, and which for 200 years had been the only dependency of the family. The grievances of the Prince Nagato as well as other powerful damios against the Tycoon throws light on recent proceedings, and the events by which they were followed. The government of Yedo, on suddenly opening the country to foreign commerce, had broken one of the fundamental laws of the empire. This it had done without the assent of the great feudal chiefs, and one can perceive that these, whose interests were opposed to that of the Tycoon, endeavoured incessantly, from spite and indignation, even from conviction to a point of honour, to annul or even to break the treaties concluded without their sanction.

A piece of intelligence from the interior, in the month of October, 1863, confirmed what was already known of the ambitious projects of the Prince of Nagato. A numerous body of officers of this damio it is said had attacked, near Ouska, the palace where the Mikado was, with the intention of obtaining possession of his person. After a bloody conflict with his guards, the assailants were eventually repulsed. It is useless to say that the governors of Yokohama on being questioned by the foreign ministers of the reality of these rumours declared them untrue. According to them, a mere attempt near Kioto, on the officer of collector of imposts, by a band of lonines, had given rise to this fable. Afterwards, however, the members of the gorodjo informed the ministers the reality of the facts, which at first, had been denied.

The Prince of Nagato had, in fact, resolved to obtain possession of the Mikado's person, hoping afterwards, through the pretext of preserving his person from the dangers incurred by his sovereign, that he would confer on him the title which he desired. He had written a letter to the Mikado, telling him of the perils which threatened the empire, and the necessity of imploring Divine interposition, and conjured him to go to the temple of Hatchimam-Sama to intercede with the manes of his ancestors. No other Emperor he said had failed to perform this duty at least once during his reign. The Mikado consenting to this request, had left his palace at Kioto for the temple of Hatchimam-Sama, some days' journey distant, and it was then that Prince Nagato had made his attempt which had failed. In consequence of this, the Damio it appeared was outlawed as well as his whole retinue. The officers of the Tycoon carried to the palace what the Prince had at Yedo. His servants were massacred, his dwelling destroyed, his land confiscated and everything belonging to him banished, so that no trace of it should remain. It will be remembered that every Damio was obliged to have, in the capital of the Tycoon, a palace where his wife and family constantly remained as hostages, and where he himself was obliged to appear at certain periodical intervals, in order to renew his oath of allegiance. This obligation is in force even now. Nevertheless, in 1862, there was a report (but not confirmed), that by reason of the troubles in which the country was embroiled by

the Tycoon, a certain number of Damios had resolved to forsake allegiance. And long convoys had been seen of the families of the Damios who had abandoned their palaces at Yedo to retire into the provinces.

All these incidents clearly demonstrated the prevalence of hostility to foreigners in the councils of the Empire of Japan. The government of the Tycoon complied or yielded to this preponderance, unable to avoid it, for it was said that civil war had broken out at various places, and that the rebels were in arms in the province of Mito. A battery on isle Awasi it was added had actually fired on a steamer bearing the flag of the Tycoon. At Yokohama, however, well-grounded fears were raised in September, 1862, by the tragical event on the Tokaido, but which were gradually dispersed by the vigorous conduct of the foreign fleets in less than a year. From the autumn of 1863, every day after the hours of business, numerous promenaders were seen as formerly in the delicious country about Yokohama. Frequently in parts of the valley some of the Japanese nobility (*samourai*) would be met, whose looks were not very satisfactory, while they were also armed with two swords. But beyond the route of the Tokaido, the great high road of Japan, the police of the Tycoon did not proceed like a network on the borders of this route interdicting to those who were not called there by duty all approach to the town. But guards and soldiers of the police, whose uniform was well known, were seen at numerous posts of observation on the hills by the side of the roads surrounding the town.

On the 14th of October, 1863, about four in the afternoon, a report was suddenly spread in Yokohama that the dead body of a European had been found lying on a road in the country. The place was in the neighbourhood of Pagodas about a mile from the town. Residents and officers joined by Japanese guards, hastened to the spot where they found the mutilated body still warm, of an officer of the French legion, of African infantry. In spite of the severe sabre cuts, which had nearly severed the cranium, he was recognised as Lieut. Camus, who had gone out about an hour previously to take his usual ride; and he had gone without his revolver which he usually carried with him. It is probable that the unfortunate officer had been surprised by an unforeseen attack of assassins more or less numerous from whom he could not defend himself, for the wounds with which he was covered were sabre wounds which the Japanese are so ready in bestowing. His right hand, cut off by a sabre blow, was found some steps from him holding the fragments of the reins. The horse, slightly wounded and covered with blood had wandered a little way from him. The nature of the country, wooded and formed of high ridges, admitted a ready retreat and concealment of the assassins. No one seemed to have witnessed the transaction, but one thought seemed to occupy every one, which was that the crime had been committed without provocation: either political hatred or Japanese fanaticism had found one more victim.

In the evening of the following day the body of the unfortunate officer was deposited in its last resting place, attended by detachments of soldiers of all foreign regiments present, by the officers of the foreign legations, residents and all those of the troops and ships of war at Yokohama. This numerous and imposing cortege defiled slowly through the streets of the town to the European cemetery, passing in its way tombs which reminded them of former massacres, those of two Russian officers assassinated in 1859, of two Dutch captains who had been cut to pieces in the streets of Yokohama even in 1860; that of Mr. Richardson killed thirteen months before, again those of two soldiers killed at their posts in June, 1862, on the second attack on the British Legation. They lay side by side under the large trees on the hills of Amoura. M. Heusken, the young interpreter, killed at Yedo in 1861, had been buried in the capital in the garden of the American legation. But there is not a single nation admitted among the Japanese that has not to claim revenge for a victim of the savage pride of their Damios.

From the first we had looked on the Japanese Government as ill-inclined to trace and deliver up offenders. This murder had not been committed in broad daylight like that of the former year, and the circumstances and occasion of it were left in profound mystery. Was it an act of personal revenge? According to appearances and the last incidents of the life of M. Camus this supposition was impossible. Was it a fresh act of defiance on the part of the Damios, who threatened a crusade against foreigners, or did the government of Yedo itself unable by its underhand proceedings to get rid of the foreigner, was this government thus following up with assassination its dark threats?

On the day following the murder of M. Camus, the local authorities themselves remitted to the French Minister the first reports received from the agents of the police. These documents stated that one or two country people had observed the transaction from a distance; three *samouria* they said, armed with sabres, had struck the officer and were seen by them to run away rapidly towards the Tokaido. Nothing further could be obtained: voluminous accounts signed by an army of spies, showed that the escape of these men had been traced to a considerable distance from the scene, when all further trace was lost. The proximity of the Tokaido favoured their escape, and secured the shelter from punishment of the assassins, in the case of their belonging to some important person at a distance; but on the other hand the police of the Tycoon, both active and numerous with its ramifications everywhere, even to the midst of families, allowed nothing to escape them that was important to the subject. In the midst of these feelings the commanders-in-chief assembled in conference, and decided independently of the guard of the place, well-organised from the month of June, it would be necessary to have a daily patrol to explore the country within three miles round Yokohama. This service was undertaken by the detachments of the troops of the different nations

at the place, and the marines of the Prussian frigate *La Gozelle*, just arrived in the roads took part in it.

Some days after this tragic event of the 14th of October, another mysterious and unexpected incident occurred. The representatives of the United States and Holland received an invitation to Yedo, from the *gorodjo*, to receive a communication of the highest importance. General Pruyh and M. Polsbrouk having presented themselves there on the 26th October, were admitted before the council assembled in the Faubourg of Sinagava.

(To be continued.)

Nautical Notices.

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

PARTICULARS OF LIGHTS RECENTLY ESTABLISHED.

(Continued from page 435.)

All bearings are magnetic.

Name.	Place.	Position.	F. or R.	Ht. in Feet	Dist seen Mls.	Remarks, &c. Bearings Magnetic.
42. Rangoon	Mouth of the River	16° 16' N., 96° 19-6' E.	..	..	..	Est. 1st June, 1866. Vessel moored in 7½ fathoms.
Colombo	Ceylon	.....	..	90	..	Est. 1st September, 1866. Near the flagstaff. During the placing of a light apparatus in the clock tower.
43. Ponza Island	Mount Guardia	40° 53-1' N. 12° 57-4' E	Fl.	..	26	Est. 1st August, 1866. Flash every half minute. Tower painted with red stripes.
Cape Spartivento	Sardinia, South coast	38° 53-6' N. 8° 50-8' E.	F.	364	23	Est. 1st August, 1866.
<i>Reestablishment of Lights on the Coasts of the United States of America.</i>						
39. Cape Fear R.	Oak Island	33° 53-4' N.	F.	33	..	Est. 4th July, 1866.
W. entrance	Beacons	78° 1-6' W.	F.	45	..	..
40. Port Royal, S. Carolina	Bay Point	.....	F.	..	..	Temporary in position of former light.
41. Cape Fear R. Entrance	Bald Head	.....	..	..	..	Light discontinued from 1st September, 1866.
42. ....	.....	.....	..	..	..	..
43. Cape San Blas	Florida West coast	.....	Fl.	..	16	Reest. 23rd July, 1866. A flash every 90 seconds.
44. Cape St. George	Florida	28° 55 5' N. 80° 5-1' W.	F.	..	15	Reest 1st August, 1866.
Matagorda	.....	.....	F.	40	7	Temporary wooden tower. White light, flash every 90 seconds.
Bollivar Point	Galveston B. entrance	.....	F.	40	7	White light. Square wooden tower.
45. Jupiter Inlet	Florida, East coast	.....	Fl.	143	20	Reest. 28th June, 1866. Bright glare of 7½ seconds.
46. Quoddy Head	Maine, U.S.	.....	..	..	..	Est. 15th August, 1866.
F. Fixed. Fl. Fixed and Flashing. R. Revolving. I. Intermitting. Est. Established.						

SHOAL IN KAWAU BAY, HAURAKI GULF. — *New Zealand, North Island.*

A shoal has recently been discovered by H.M.S. *Eclipse*, Commander E. R. Fremantle, between the Mayne islands and entrance to Bon Accord harbour, Kawan Island.

The shoal is nearly circular, about three-quarters of a cable in extent, with $2\frac{1}{2}$ fathoms water on it. It lies with the middle of the North Mayne Island, bearing W.b.S. $\frac{1}{2}$ S., distant about 4 cables, and with Fish Point just shut in with the South Mayne Island.

NEWFOUNDLAND,—*East Coast.*

The following rocks and dangers on the east coast of Newfoundland, have been examined, and their positions verified by James H. Kerr, Master R.N., Admiralty Surveyor, 1866:—

Martin Ledge, with 7 fathoms water on it, lies E.b.N. $\frac{1}{2}$ N., distant 1·6 miles from Grates point. A patch with 5 fathoms on it, lies N.E.b.E., half a mile from Grates point. Collins ledge, with 16 fathoms on it, lies N.E.b.N., 1·8 miles from Bacalhao or Baccalieu lighthouse. The inner Collins ledge, with 15 fathoms on it, bears N.W. $\frac{1}{2}$ W., 1·1 miles from the lighthouse.

Coast from Salvage Point to King's Head.—Between Salvage Point and King's Head, the shoals are far more numerous than those at present marked on the chart.

The Brandyson rocks, which cover an area of nearly half a mile, have also 2 feet water on them instead of 3 fathoms. A bed of rocks extends only from Hants harbour in a N.E.b.N. direction for nearly 3 miles, and on the outer edge of the whole range of shoals are shallow patches with from 2 feet to 3 fathoms water on them. It deepens a few yards seaward of the outer edge to 30 fathoms, and at a short distance to 100 fathoms. The lead is therefore no guide when near them.

Between the Arthur and Knife rocks are five other shoals, with less than $2\frac{1}{2}$ fathoms on them.

To avoid all the foregoing dangers keep Grates point bearing E.b.S. until the Sugar loaf is well open of King's Head S.W.

East Brandy, with 7 fathoms water on it, lies S.E. $\frac{1}{2}$ E., distant 1·1 miles from Bonavista lighthouse.

Dollarman Bank.—From a depth of 20 fathoms at N.E. end of this bank, S.E. $\frac{1}{2}$ E., distant 5·6 miles from Bonavista lighthouse, to one mile East of Catalina North head, are numerous rocks with 7 to 10 fathoms over, and deep water close around them. The sea breaks on them in bad weather.

Old Harry, with $1\frac{1}{2}$ fathoms water on it, lies N.N.E. $\frac{2}{3}$ E., distant 4·1 miles from Bonavista lighthouse; and Young Harry N.W. $\frac{3}{4}$ N., 6·2 miles from the lighthouse. Between them are other patches with less than 3 fathoms on them, and they break with a moderate sea.

Dacres Rock, with 9 fathoms on it, lies N.N.E. $\frac{1}{2}$ E., distant 2·3 miles from Cape Bonavista lighthouse; and the Skimmerton Grounds, with 12 fathoms, East southerly, distant 1·8 miles from the lighthouse. Both break in a heavy sea.

AUSTRALIA,—*East Coast.*

From the information of Captain Edwards, of the ship *Woodlark*, and communicated by Commander Nares H.M.S. *Salamander*, the following dangers not hitherto marked in the Admiralty Charts exist in the inner route to Torres strait.

Detached patches of rocks awash, lie on the east side of the channel formed by Barrow point and the *s*, *t*, *u*, reefs. From these rocky patches Barrow islet bears about W.b.S., distant 3 miles, and the mangroves on the S.W. side of *s*. reef are in line with the East end of No. 6, Howick group, bearing S.E.b.E. nearly.

A rock with about 6 feet water on it and 10 fathoms close to, lies a long half mile to the Westward of the Middle reef off Weymouth Bay. From the rock, the Bush sand-bank on Middle reef bears about E. $\frac{3}{4}$ S., Rock off Restoration Island, S.E., and Roundback Hill S.b.W. $\frac{1}{4}$ W.

The above positions must for the present be considered as approximate.

MARINA ROCK,—*Torres Strait.*

The following information has been received from the Government of the Straits Settlement, Singapore:—

A small coral patch, said to be only 16 feet square, has recently been discovered—by the British barque *Marina* striking on it, and subsequently sinking in deep water—in the fairway at the east entrance to the Prince of Wales channel, Torres strait.

It lies in lat. $10^{\circ} 27' 30''$ S., long. $142^{\circ} 22' 15''$ E., with Double island bearing E. $\frac{1}{4}$ N., distant $4\frac{1}{2}$ miles; Ince point of Wednesday island S.W. $4\frac{1}{2}$ miles; and Travers island N. $\frac{1}{4}$ W., $5\frac{1}{2}$ miles.

After passing Double island and approaching Prince of Wales channel, a vigilant look-out is therefore necessary.

A case which may interest some English shipowners has just been decided by the Tribunal of Commerce of Havre. Captain Wright, of the English vessel *Hebe*, in April last, engaged by Charter-party to go to Clackmannan, "without delay, for a cargo of coal, to be put on board according to the custom of the place, with all possible dispatch," and carried to Harfleur, or Pont Audemer, for a M. Bert. Arrived at Clackmannan on the 2nd of May, the Captain found that there was a strike among the labourers of the Port, and he had to

wait until the 22nd of May before he could load. He then proceeded to Harfleur, and demanded from Bert, in addition to his freight, £36 10s., for the time he had lost at Clackmannan, the delay being owing to no fault of his. M. Bert refused to pay, and an action was brought. The decision of the Court was, that as the Charter-party did not fix any delay for the loading, but simply said that it was to be done "according to the custom of the place, with all possible dispatch," the captain could not escape from the consequences of a condition which, though it had turned out onerous to him, he had freely and voluntarily accepted. The Court, therefore, rejected his demand of £36 10s., and ordered him to accept the sum agreed on for freight.

A CLUMSY HOAX.—The following has gone the round of the papers, and no one yet seems to have seen the hoax :—

"*Monarch of the Sea*: Left Liverpool on the 19th March; 2nd May no wind, short of provisions, and no water. Dismasted in a gale, 3rd April, lat. 25° 20' N., long. 47° $\frac{1}{2}$ W. — Signed Wm. JOHNSON, passenger."

How could the *Monarch of the Sea* be in the above lat. and long. in fifteen days from Plymouth, or did ever a steamer go so far South as 25° 20' on her way to New York from Liverpool, New York being in lat. something near 41° at a guess.

A letter from Toulon states that the steam-ram *Taureau* has just entered the port, to be placed in dry dock and have her bottom cleaned. That operation has been commenced none too soon; after being eight months in commission, this vessel had an immense mass of vegetation adhering to her plates; even coral had already acquired there a certain dimension. What is more serious is the holes, of from a third to half an inch in depth, which have been bored by worms just along the water-line, the most vulnerable part of the ship, and which menace to become a serious danger to iron-cased ships if means are not adopted to protect them.

ROYAL NATIONAL LIFEBOAT INSTITUTION.

A meeting of this institution was held on Thursday 2nd August, at its house, John-street, Adelphi; Thomas Chapman, Esq., F.R.S., V.P., in the chair. There were also present the Right Hon. Stephen Cave, M.P., Sir Edward Perrott, Admiral Gordon, G. Lyall, Esq., Captain De St. Croix, W. H. Harton, Esq., Admiral W. H. Hall, C.B., F.R.S., Admiral M'Hardy, Captain Ward, R.N., inspector of lifeboats to the institution, and Richard Lewis, Esq., the secretary. The minutes of the previous meeting having been read, rewards, amounting to £27, were granted to the crews of the lifeboats of the

institution stationed at Arklow, Courtown, and Cahore, for various services in the boats during the past month.

A reward of £12 was also voted to the crews of the fishing smack *Water Lily* and *Jane*, of Beer, near Axminster, and £2 to each man of the crews of two smaller boats belonging to Budleigh Salterton, for their valuable services in assisting to bring ashore the officers and crews of her Majesty's ship *Amazon* and the steamer *Osprey*, which vessels had sunk after being in collision a short time previously. At the time the boats containing the shipwrecked men were fallen in with they were pulling away from the land, and were so heavily laden that the gunwale of one of the boats was said to be actually only an inch and a half above the water. Shortly after they had been assisted by the smacks a breeze sprang up, which would have inevitably have swamped the boats had they not been thus so opportunely lightened by the fishing boats.

A communication was read from Robert Whitworth, Esq., of Manchester, stating that he had received £1,000 for the institution from a lady giving the initials of "H. W." That amount was intended for two lifeboats, one of which was to be named the *William Woodcock*. Captain J. M'Gregor had handed to the institution the handsome sum of £40, being the half-share of the profits realised by his interesting work on the *Rob Roy Canoe*. At the suggestion of Colonel Hargreaves, a collection amounting to £16 16s., in aid of the funds of the society, had been made in the volunteer camp at Lytham, after a sermon by the Rev. R. Robinson. New lifeboats had been sent during the past month to Hasborough, Ballycotton, Gorleston, and Brighstone Grange, and on Tuesday next a new lifeboat will be launched at Margate. Earl Percy presented to the institution a fine portrait of the late Duke of Northumberland, who had been its president for many years. It was stated that Captain Montagu Pasco, R.N., had paid to the institution an instalment of £106, which he had collected in the London southern district, in aid of the cost of a lifeboat. Edward Absolom, Esq., of Rood-lane and Snaresbrook, was also using his best efforts to increase the annual subscriptions of the institution. "C. F. K." had also collected from forty-five persons, 45s. in aid of the funds of the society.

Legacies had been received during the past month from the executors of the late Mr. George Anstice, of Chipping Norton, £67 10s.; the late Mr. G. Scott, of Warborough, £45; and the late Mrs. Elizabeth Morgan, of Cheltenham, £204. It was also reported that the late Mrs. Story, of Kensington, had left the institution a legacy of £500, to defray the cost of a lifeboat. A report was read from Captain Ward, R.N., the inspector of lifeboats, on his recent visits to some of the Scotch lifeboat stations of the institution. Payments amounting to £2,770 were made on various lifeboat establishments during the past month, and upwards of £7,000 has thus been paid by the institution since June last. The proceedings then terminated.

New Books.

A volume entitled *Venetian Life*, by Mr. W. D. Howells has just been published by Triibner and Co., which certainly is well-timed at the present moment, when the old City of Waters has just concluded another period in her amphibious existence, that will be celebrated in her history as terminated by her release from the hated Austrian rule. There could not have been a more favourable moment for placing an unprejudiced view of every-day life in Venice, in her forlorn, neglected, and fallen condition, before the general reader.

A residence in Venice of above three years in an official capacity of some light duty, gave the author ample opportunity for this, and has enabled him to observe pretty closely Venetian character, habits and manners. These he has depicted with all truth, although he candidly owns to a vein of admiration for the architectural beauties which soon became to him scenes of every-day life. The reader acquainted with Venice in her earlier prosperous days, will contrast them with the ill-concealed resignation of her people, as described by Mr. Howells, under the oppression of the Austrians—and this with the future restored activity hereafter of the merchant city, with its bustle of business. He will find this little volume an interesting and impartial companion. We cannot congratulate the author or his reader in this part of the world, as we conclude this volume to be simultaneous in appearance with the same work in New York. Three pages of important errata will tire any reader's patience: and why two leaves are carefully *repeated* (in lieu of consecutive) in two distinct parts of the volume, may be, perhaps, easily accounted for, but will disappoint close readers. In spite of these drawbacks, Mr. Howell has produced a highly valuable and entertaining little book.

CHARTS AND BOOKS PUBLISHED BY THE HYDROGRAPHIC OFFICE,
ADMIRALTY, in August, 1866.—Sold by the Agent, J. D. Potter, 31,
Poultry, and 11, King Street, Tower Hill, London.

1,620.—Ionian Sea, Molo Gulf, Vathi and Vliko Ports, Captain Mansell, R.N., 1864, (1s. 6d.)

178.—Africa, North Coast, Stora, Philippeville, Collo, and Jigelly Anchorage, &c., French surveys, to 1851, (1s. 6d.)

1,949.—South Atlantic Ocean, the Rocas, Lieutenant Oliviera, Brazilian Navy, 1858. (6d.)

468.—Haiti, Acal Bay, French survey, 1818, (6d.)

1,098.—United States, Lower Matacumbe Cay to Boca Grande Cay, United States survey, 186, (23s. 6d.)

686.—Madagascar Island, Fenerive, French survey, 1862, (1s.)

737.—India, West Coast, sheet III., Arnol Point to Kudari, including Bombay, Lieutenant W. B. Selby, I.N., 1855, (2s. 6d.)

745.—..... VIII. Alvagudda to Molky, Lieutenant A. D. Taylor, I.N., 1857, (2s. 6d.)

747.—..... X. Mount Dilly to Calicut, Lieutenant W. B. Selby, I.N., 1856, (2s. 6d.)

749.—..... XI. from 11° 2' to 9° 50' N., corrections to 1866, (2s. 6d.)

1,027.—Australia, East Coast, Coffs Islands to Evans Head, with views, Commander Sidney, R.N., 1865, (2s. 6d.)

EDWARD DUNSTERVILLE, *Commander, R. N.*
Admiralty, Hydrographic Office, 20th August, 1866.

DEEP SEA SOUNDINGS IN THE NORTH ATLANTIC FROM IRELAND TO NEWFOUNDLAND

BY LIEUT. J. DAYMAN, R.N.
assisted by M. J. Scott, Mast^r R.N.
H. M. S. CYCLOPS.
1857.

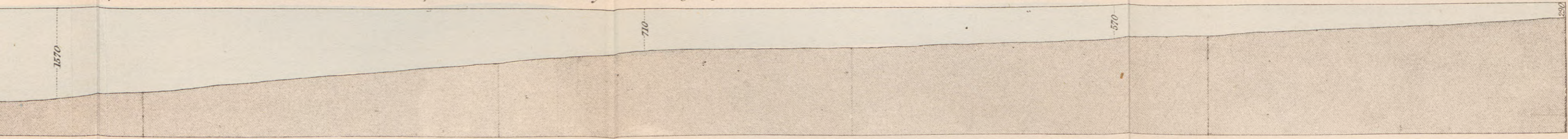
SOUNDINGS IN FATHOMS
cl. clay, m. mud, oz. s. s. r. rock, s. sand, st. stones.
Upright Soundings by R. Hoskyn, Mast^r H.M.S. Porcupine 1862.

REFERENCE.
A Aug. 10 Here the Albany and Terrible reached the position of the Cable, grappled and buoyed it, but the Chain broke, lost Rope and Cable.
B " 12 The Great Eastern and Medway reached the above position.
C " 15 Here at Midnight the Great Eastern raised the Cable 500 fms. but in buoying it lost Rope & Cable.
D " 17 Here at 1.55 A.M. the Great Eastern raised the Cable to the bow sheave when in attempting to get it on board, at 10.50 it parted, the sea too rough for the boats to act.
E " 19 Here the Great Eastern grappled and buoyed the bight at 9.30 P.M. having raised it 86 fms. from the bottom.
F " 26 Here on the same day the Albany grappled the Cable but cleared it again at 8 A.M.
G " 26 Here the Medway grappled it close to the bight but at 5 P.M. the Cable parted having raised it 1000 fms.
H " 27 Here the Albany grappled it at 11 P.M. raised it to the surface and buoyed it.
I " 29 The Great Eastern occurred it round the buoy with the bight of the Cable and brought on board, two miles attached to it being carried to **H** by the current. Changed grapping to this position.

At 3 P.M. July 7, 1866 the shore end of Cable was laid. At 4 P.M. July 13 the splice was completed, and Great Eastern commenced paying out the Cable.

Date Noon.	Lat. N.	Long. W.	Distance run in the 24 hours.	Cable paid out in the 24 hours.	Total Distance run.	Total Cable payed out.	Depth of Water.		Date Noon.	Lat. N.	Long. W.	Distance run in the 24 hours.	Cable paid out in the 24 hours.	Total Distance run.	Total Cable payed out.	Depth of Water.	
							From	To								From	To
1866 July 7									1866 July 19	51° 54'	29° 39'	112 .	128 . 66	712 . 9	811 . 14	2.400	2.176
" 8									" 20	51° 36'	32° 57'	117 . 5	127 . 46	830 . 4	938 . 6	2.176	1.550
" 13									" 21	51° 18'	36° 1'	121 . 9	135 . 73	952 . 3	1074 . 33	1.600	1.657
" 14	52°	14° 1'			135.75	144.25	120	216	" 22	50° 48'	39° 14'	123 . 4	133 . 14	1075 . 7	1207 . 47	1.657	1.950
" 15	52° 1'	17° 29'	127 . 25	138 . 75	263 .	283 .	216	1.950	" 23	50° 16'	42° 16'	121 . 2	137 . 77	1196 . 9	1345 . 24	2.424	2.050
" 16	52° 6'	20° 36'	115 .	137 .	378 .	420 .	1.950	1.575	" 24	49° 30'	45° 21'	122 . 77	134 . 82	1319 . 67	1480 . 06	2.050	2.225
" 17	52° 15'	23° 48'	117 . 5	137 . 82	495 . 5	557 . 82	1.575	1.950	" 25	49° 30'	48° 11'	110 . 33	129 . 94	1430 .	1610 .	2.225	1.203
" 18	52° 01'	26° 37'	105 . 4	124 . 66	600 . 9	682 . 48	1.950	2.400	" 26	48° 45'	51° 16'	128 .	134 .	1553 .	1744 .	1.203	130
									" 27	Shore end landed; Hearts Content.		100 . 4	103 . 98	1665 . 5	1852 . 115		

The splice between shore end and main Cable completed at 8.43 P.M. July 27. Messages passed between Ireland and Newfoundland Insulation and Continuity perfect.



SECTION OF THE BED OF THE ATLANTIC OCEAN FROM VALENCIA TO TRINITY BAY NEWFOUNDLAND.
On the exaggerated scale of 15 Vertical to 1 Horizontal.

CABLE OF 1865-6.

The shore end of the Atlantic Cable 25 miles in length laid down on the night of the 23 July 1865.

Date Noon.	Lat. N.	Long. W.	Distance run in the 24 hours.	Total Distance run.	Total Cable payed out.
1865 July 24	52° 2'	12° 23'			
" 25	52° 5'	14° 22'	75	150	175
" 26	52° 32'	18° 30'	152	302	300
" 27	52° 38'	19° 38'	120	422	425
" 28	52° 42'	22° 20'	100	522	500
" 29	52° 40'	26° 12'	150	672	650
" 30	52° 40'	27° 30'	60	732	750
" 31	52° 20'	30° 10'	100	832	900
Aug ^t 1	51° 57'	34° 5'	150	982	1050
" 2	51° 35'	37° 52'	150	1132	1200
1866 Sept ^r 2	52° 0'	36° 40'			
" 3	51° 32'	39° 37'	134	1266	134
" 4	51° 0'	41° 55'	100	1366	254
" 5	50° 12'	45° 0'	122	1488	418
" 6	49° 44'	48° 2'	120	1608	555
" 7	49° 10'	51° 28'	135	1743	698

At 3.29 A.M. on Sep^r 2 near this position the splice was completed, between the Cables of 1865 and 1866 about 80 miles of the old Cable being abandoned. At 6.45 A.M. the Great Eastern commenced paying out the new part of the Cable.

On Sep^r 8, 1866 at 9.20 P.M. the Atlantic Cable of 1865 was landed at Hearts Content Newfoundland, tests perfect, thereby completing the double Telegraphic communication.

London, Published at the Hydrographic Office of the Admiralty, 1 Dec 1857. Corrections June 1865.
Sold by J.D. Potter, Agent for the Admiralty Charts, 31 Pauline & 11 King Street, Tower Hill

THE
NAUTICAL MAGAZINE

AND

Naval Chronicle.

OCTOBER, 1866.

A WORD OR TWO ABOUT FOGS AT SEA.

No one casually visiting a distant country for a short time can ever be expected to give more than a superficial account of the natural phenomena of its climate. The same seasons of successive years there will often be so unlike each other that different travellers will give directly opposite testimony concerning them. As the field of research however extends, and more information is acquired, very many facts are brought to light explanatory of the causes of such difference. Still no precise law can be laid down by which one can with certainty predict the nature of the weather there for any future season. When the cutting N.E. wind blows over this island of ours, late in spring or early in the summer, it is said that the snow and ice on the mountains of Norway have not yet dissolved. But no data are yet sufficiently established on which to form a theory for prophecy, and even should it be so admitted that prophecy might always be doubted. For very severe winters in the northern regions have not entailed an unusual amount of easterly gales on the East coast of England. On the contrary, the severe winter of 1855-6 was marked by a constant succession of westerly storms.

A more than ordinary influx of warmth supplied by the waters of the Gulf Stream, would have the same effect in producing easterly gales, as would arise from an accumulation of ice in the mountains of Norway.

The following remarks on fogs are the results of my own experience. They are committed to paper off hand by way of preserving them, and contain but a meagre description of one of the phenomena of our maritime world.

Among the numerous enemies which beset the path of the navigator, in steam ships especially as well as sailing ships, fog is probably the most dangerous. A ship in a fog in crowded waters may be compared to a person walking through an abundantly furnished room in the dark. He may avoid stumbling over an insidious ottoman, or he may not be stopped by the horns of an American rocking chair. But at times the greatest care fails in keeping him scathless, and he vainly regrets when he comes to grief that he did not *wait for a light* before he rashly ventured on his expedition. Many a seaman has experienced the same feeling when his ship has suddenly found herself in collision with another, or has run on shore in a dense fog, which anxiety for his reputation in making a quick passage had induced him to disregard.

Providence has mercifully ordained that storm and fog seldom prevail at the same time. In stating this, I do not mean to assert that the heavy S.W. gales on our coast are unattended with thick weather; but it differs from the dense hedge-like fogs of Newfoundland and other places. The land can mostly be seen in daylight at a distance of one or more miles; and even at night the principal lights may be made out at a considerable distance. But I have personally steamed out of Kingstown harbour in a fog, and when between the piers could not distinguish the light, although only a few yards distant; the sound of the bell being the only guide.

Owing to the greater changes of temperature in the northern hemisphere, the fogs there are always more dense than in the corresponding latitudes of the southern. The eastern coasts of North America, from the capes of Delaware northward, especially on the Banks of Newfoundland, is the principal district of fog. There, on a quiet morning, the water produced by it may be seen streaming down a ship's rigging and falling on the soddened deck, caused doubtless by great changes of temperature which suddenly take place both in air and sea. I believe this change of temperature is the great agency, sinking the heavier and colder masses on their passage southward through that which has been rarified by the action of the sun's rays on a quiet day. The icebergs and floe ice which in spring break loose from the shores of Labrador or Greenland, chilling with their presence the warmer region to which they have drifted, also assist in forming these unwelcome visitors, known as fogs.

One of the most remarkable features of these fogs is the perpendicular formation of their outer or eastern boundary. I have seen a ship emerge slowly from one, foot by foot, as if she were being dragged out of a grey cliff. The upper surface of the fog is frequently quite horizontal, and at no great elevation above the surface of the sea. It is, in fact, an enormous layer of vapour, over which the mast-head flag of a lofty ship may often be discerned when the lower masts and hull are enshrouded in it.

Again, in sailing up the River St. Lawrence the land is at times seen from the mast-head over the fog, when on deck an object is not visible at the distance of a ship's length.

The appearance of vessels to the respective crews of each when

chance throws them in close company, is very singular. A vague sensation of anxiety, amounting almost to superstition, creeps over one, for the correct nature of the apparition cannot at once be realized, however keen the watch may have been for suspicious objects. The sails, masts, hull, and even the figures of men, assume gigantic and unnatural proportions, which puzzle the spectator, and cannot at once be identified.

It is to be feared that to the agency of fogs may be attributed the fact of many small vessels being run down annually in defiance of the most vigilant look out in our steamers. In smooth water a fast vessel glides along even when slowed, at a most dangerous rate, and so silently, that allows only a short interval of time to clear an object which suddenly comes in sight. Indeed it is frequently little better than "running a muck" when crossing the Banks of Newfoundland at some seasons of the year. The total absence of any fatal collision between our Atlantic steamships, is good proof of the care and watchfulness of their commanders; for ever since they were established such an occurrence has not been known. Two Cunard steamers once came into collision off Cape Race, and one was seriously injured; but the skilful manner in which she was subsequently taken into port and repaired rather increased than diminished the confidence of the public on both sides of the Atlantic in the safety of the ships of that great company.

The American steamship *Arctic* was not so fortunate. It is said she came in collision with a French steamer. On board the former the first impression was that their own ship was not seriously injured, and they lowered a boat to send to the assistance of the other. On discovering their danger, however, they set on full speed with the hope of reaching the land, and the boat was never heard of again. The *Arctic* sank about four hours afterwards. A lifeboat was soon ready for lowering, filled with women and children. One of the tackle falls broke or slipped off the cleat in easing down, and the whole were thrown into the sea and drowned. The captain behaved like an ancient Roman, refusing to quit his ship to the last, and was rescued some hours afterwards, supporting himself on a portion of the broken paddle box, when every one believed he was drowned.

The dangers of fogs are much increased by the presence of icebergs, and yet it is almost marvellous how few are the fatal accidents which have taken place from collision even with them, considering also that the toughness of the best iron is much lessened by intense cold. The celebrated steamship *Persia* is said to have struck an iceberg when going at full speed, split it in halves and passed between them. This berg must have been composed of very rotten ice, or the *Persia* would not have escaped so easily; as I have found great difficulty in forcing a ship through broken patches of pancake ice,—every timber would tremble, and wine glasses start out of the racks, as she struck successive pieces. Fog probably caused the loss of the *President* and the *Pacific*, but no one can with certainty say, by running on an iceberg.

Fire or collision with one of the many wrecks which during these two years were numerous in the Atlantic, may with an equal degree

of probability be assigned as the cause of their loss. While mentioning the fate of these ships, the term mysterious cannot be applied to them as to their disappearance. If a ship must be abandoned in the Atlantic during winter from any cause, her crew have but an indifferent chance of escape from death. An ordinary gale would quickly swamp the crowded boats, probably before they cleared the ship; and supposing them to leave her without accident, cold and hunger would quickly do the work which the sea had left undone. Neither am I surprised that no remnant of the wrecks of these vessels was ever found on the ocean by which they might have been identified, although a diligent search was instituted for them. In whatever manner they disappeared, I believe the locality to have been on the northern point of the great circle forming Capes Race and Clear. If this supposition is correct, any wreck which might have floated would be more likely to be washed up on the western shores of Ireland or Scotland than to be seen by the casual voyager, whose course would almost always lie to the southward of this track. It must also be borne in mind that the Gulf Stream has a perceptible drain to the N.E. about this part which would slowly carry all drifting matter in that direction over an unfrequented part of the ocean.

The steamers engaged in the Montreal trade are the greatest sufferers from fog; compared with theirs the mishaps of the other companies dwindle into insignificance. It is said that one vessel has annually been lost on the average during each of the last eighty years. Incorrect compasses, pushing on at improper times, and errors in judgment, have doubtless aided the fogs of the estuary of the St. Lawrence in stranding so many noble ships. Still no one can deny the fact that the dangers of this route surpass all others; enough are they indeed to baffle the skill of the best seamen in the merchant marine.

In the spring it is not uncommon for these fogs at the entrance of the straits of Belleisle to last for three days, rendering it impossible to run with safety, and more than one steamer has been backed off when almost touching the rocks, without those on board being able to recognize the locality.

It is fortunate for navigators that the greater part of the regions of North America, where fogs prevail in more than an ordinary degree, have a bold and safe coast. Cape Race may be approached within a few yards, and stories are told of marvellous escapes by Atlantic steamers from the rocks at the base of this well known headland. How, when the cliffs were looming over their mast-heads, and yard-arms barely clear of its precipitous rocks, the coolness and skill of one man had saved hundreds of lives from certain death.

I once had a narrow escape in entering Halifax. Fog had prevailed over portions of three days, and the ship had been navigated solely by log and lead. At two o'clock in the morning (October) the depth of water indicated that the ship was not far from Samb'ro Lighthouse. The engines were stopped, and at daylight, in a slight clear, a pilot-boat was seen close to. When the pilot came on board, his bearings agreed so well with ours, that there was no hesitation in setting on

the engines at full speed when the pilot wished it. Occasionally we both stooped with the hope of seeing it by peering through the lower fog. Suddenly a faint muffled sound struck my ears, and before I had time to think what it could be, the fog rolled back, and the white foam of the breakers on the Sisters Rocks was seen close to. The helm was put down, but so imminent was the danger, that the seamen who were forward jumped off the forecastle as the ship came round, believing escape impossible. There was a Providence watching over us on that day, for had the fog remained even a few seconds longer, we should have been in the middle of the breakers. It was a lesson cheaply bought, and one which taught me not to rely on any pilot when the land and leading marks were not in sight. A piece of advice which all will do well to follow.

Fogs magnify and distort objects in a singular way. I have known a bird to be mistaken for a sail. Not long since the pilot of one of the Atlantic mail steamers ran her on shore in coming out of Queenstown Harbour, by mistaking a small fishing buoy for one of those which mark the channel.

In the Baltic, during the spring of 1854, the sailing ships of the allied fleets cruising off Gothland, ran great risks of collision during the prevalence of the fogs of that season; but the sea was so smooth and the air so still that no accidents took place.

The lightest breeze is generally sufficiently powerful to roll back these fogs to the horizon; but the breeze is no sooner gone, than the fog may be seen closing in again. When this occurs late in the day, it seldom clears before next morning. Steamers are compelled to exercise an extraordinary degree of caution at such times, because in many parts of this sea the lead is a poor guide either on approaching the coast or the many outlying rocks off it.

While alluding to fogs and the difficulties with which they beset the navigator, there is another phenomenon, which, although not so dangerous, claims some remark. That extraordinary phenomenon, *mirage*, is frequently seen in the season of spring before the sea water has attained much increase of temperature, while the ice is melting under the sun's rays. On one occasion I witnessed the inverted images of the English fleet off Gotska Sando well above the horizon, although they were thirty-three miles distant. Each ship was perfectly distinct from her neighbour, and appeared about the same size as they would have done when fairly within the range of vision on a very clear day.

At the time when fogs prevail in the Baltic, there are days which are delightfully pleasant. A cool light air fills the upper sails, while the surface of the water is not broken by a single catspaw. The best Italian skies are not to be compared to these. They impart a cheerfulness and vigour to the system that renders life enjoyable, a buoyancy of spirits that makes the monotony of a sailor's existence even more agreeable here than in any other region of the globe, not to except even the enticing "*dolce far niente*" days of that fair clime.

The fogs of the Pacific, like those of the Atlantic, have their peculiarities. Among the worst may be considered those between the

Chincha Islands and Lobos and off Casma. These seldom reach far into the bays, but appear to extend more from headland to headland, and reach on an average to about twenty miles from the shore. Those of January, February, and March are the most intense, lifting a little about noon. The mail steamers of the Pacific Steam Ship Company are often seriously inconvenienced by them, and more than one of which vessels have been wrecked.

On all our principal leading lighthouses and lightships in time of fog, we require a better method of warning the mariner of his approach to danger than the present old fashioned one of bell and gong. To be thoroughly effective, the alarm should be heard from a reasonable distance, superior to the unavoidable noise with which a steamer is always attended in a greater or less degree with her engines at work. In running for one of our crowded harbours I have on more than one occasion missed all fog signals and anchored. Afterwards, when the fog has lifted, I have found myself close to them.

A powerful fog horn on each of our most important turning points, would be of inestimable service to commanders of steamers; the Skerries, for example. Many a wreck has occurred on the Arklow or the Blackwater Banks from the fact of this lighthouse having been passed without seeing it. The best seamen among the many good ones of the mercantile marine of Great Britain, have begged that one might be established there; but the Brethren of the Trinity House, up to the present time, have disregarded all that has been urged upon them to obtain it. Perhaps they may have reasoned that few vessels have been lost near the Skerries. This may be quite true! but in avoiding Scylla they have drifted on Charybdis, in the shape of sands of the more dangerous Irish coast. One glimpse of a well known landmark, *in taking a departure*, is of more value to the navigator than a score of casts of the lead afterwards. With steam or a leading wind, any ship, with her compasses reasonably correct, after knowing her position off the Skerries, may run fearlessly through the thickest fog of the Irish Channel. But,—and “here is the rub,”—on the contrary, when the Skerries have not been seen, all is doubt and hesitation! even when the lead is used, and then the chances are in favour of the vessel being lost,—not on the dangerous Skerries, but on the Irish rocks fully as dangerous as they are!

It is tiresome, besides being thankless, to be always harping on the same string, so frequently have I alluded to compass errors already. But experience convinces me that a better system of placing and adjusting this first of the mariner's monitors is absolutely necessary. In sailing ships with steel yards it is an admitted fact that the deviation changes whenever the sails are trimmed, as the compass is generally placed in the direction of the yard-arm when braced sharp up. Now a danger like this must occasion the greatest anxiety to all on board, as an observation which is correct on a wind is useless when running free. If the mizen mast and yards were of wood, a position might be found, sufficiently distant from the stern, where the binnacle could be placed so as to be beyond the influence of the main-yard,

which appears to be the great enemy and disturber of the compass; it is singular how little interest shipowners take in this important subject. Their ships make their voyages and they are satisfied; but I am certain that many frequently lose ten miles in the twenty-four hours from compass errors, which might be avoided by good and correctly placed compasses. A first class compass, will, if properly cared for and looked after, last as long as the ship; will pay itself over and over again the first voyage, and certainly where *fogs* prevail will prove an inestimable benefit to all on board. But, unfortunately, John Bull, in spite of his boasting, is slow to take advantage of many of the most useful and necessary inventions of the age. Were it not for the spur of competition, his best captains would doubtless lag on the road. But he ought to know that too many men of the last generation still hold important maritime appointments, that there are men who have never navigated a steamer *against time* in all weathers, and who believe that their darling old fashioned idea of *pounding the bottom*, is a panacea for every position of danger or uncertainty in which a ship may be placed! How long is this to last? is the present question of

MERCATOR.

[On the subject of fogs our readers will no doubt remember the excellent remarks of Dr. Kelly on those of the St. Lawrence in our volume for 1845, and some important observations by Mr. Gill, Master, R.N. But we meet with some remarks on the Electro-Negative character of fogs in the *Mechanic's Magazine* of the 14th inst., which appear to invest this phenomenon with an influence on the compass that seems likely to become a subject for inquiry among our scientific navigators. The subject is not new, as we remember a case of a vessel wrecked on Holyhead in a fog, which was attributed by counsel to its influence on her compass, and which (whether the fact or not) affected the decision of judgment. Mr. Gill, abovementioned, alludes to the effect of fog on the barometer, but we have yet to learn of proof that it affects the compass. And as terrestrial objects are then invisible, the only way that suggests itself to us of deciding the question is by the sun's azimuth, an easy operation now by Burdwood's Tables. The deviation and variation being known (combining, as they do, to form the whole compass error from the magnetic meridian) the azimuth found from the sun, (which is often clear in a fog,) while the ship is surrounded by it, would, if there be any effect, show a different error; and the difference between it and the known error might thus be set down to the effect of fog. The observations would require great care, and we should be glad to learn that some one has thus settled the question,—and removed another bugbear from navigation. Meanwhile we append the paper to which we have referred; but at present we cannot say that we believe in any effect whatever being produced on the compass from the prevalence of fog. Any of our readers who will show us that we are wrong in this opinion, will render a service to the navigator.—Ed.]

ELECTRO-NEGATIVE FOG.

Dr. Phipson has read a paper on an Electro-Negative Fog, at the British Association, and after the reading of it Mr. Glaisher made some remarks on the blue or cholera mist, as it has been called, but we cannot make out exactly whether the two are considered to be one and the same phenomenon, much less can we tell what an electro-negative fog or mist may be. We should like to have an electro-positive fog described, then at least we could make a comparison between the two; but since we are not able to do that, we must try to penetrate this mystery of the electro-negative fog. We know what a fog or mist is; but if it be electro-negative that is another matter. We suppose the first thing to be inquired into is the nature of negative electricity, or into electricity both positive and negative. What, then, is electricity? or, rather, what do our *savans* say it is? for to them we would appeal. If they can tell us, then we may be brought nearer to the understanding of this electro-negative fog. But is it not a strange question to ask at this day? Surely we know what it is. It is familiar to us all. In how many ways do we not use it? As our swift messenger half round the world; as a beacon light to guide our ships. We use it as a motive power. We use it to plate our spoons, to ring for our servants, to catch our fish, and also to catch our thieves, to light our gas, to tell the time, and to watch our idle servants. We use it in metallurgy; we use it in the fine arts, to cast our medals, vases, and statuary. We use it in surgery, dentistry, and therapeutics. We use it to spring our mines, to fire our torpedoes, and to mark our targets, and for many other purposes—so numerous that no ordinary memory can contain them. Still, what is electricity, negative or positive? and then this blue fog?

So wonderful is this thing that we have an unquenchable desire to know it face to face, and more especially now that our learned men have found out that it is some sort of a mist, and has something to do with the most fearful of all plagues, the cholera. For this purpose we have been reading the learned authors, who treat upon this fluid or force; we have read reports of committees and commissioners, who sit and consult and take evidence upon it. We have conversed with men who are wondrous learned in this matter, and tried to get their notion of what this thing is. Then we have tried to collect the sum and substance of all that we have read and talked about it, and tried to put all these multifarious notions or opinions, or guesses, or whatever they may be called (we cannot tell; but this we know that they are contradictions one of another), into some shape or other, to be understood by us if possible; but it has not been possible. First, we are told that there are five or six kinds of electricity, if not more; that there is static electricity, voltaic electricity, thermo-electricity, magneto-electricity, photo-electricity, and we know not how many besides. Then we are told it is all the same, there is only one kind. Still we are not satisfied; for we are told by the report of a committee, that static

electricity is electricity at rest; yet even then it can produce an effect; and, what is more puzzling, this same effect is produced at a distance, without any connecting medium; because it is said that the intermediate air is a non-conductor. But, even if the air were a conductor, that would not help us out of the difficulty; for the electricity is said to be at rest; consequently cannot be conceived to pass that interspace of air; for if it did it would not be at rest. Yet there is an effect produced, and it is said to be in proportion to the square of the distance. Well, now, we do wish that the teachings of our electricians could be made to square with the common notion of possibilities; for here is a marvel of impossibilities.

Electricity is a something which is at rest, yet effects something at a distance, and without any connecting medium. We think it is the sub-committee for finding out a standard of electricity who in effect have said that in their report. From this can any one make out what electricity is, not to mention that fog or mist? Can anything act when it is at rest? And at the same time can it act where it is not, neither itself nor by a nexus? Answer these who can, and still our troubles are not over. There is dynamic electricity as well as static electricity. This dynamic electricity is said to be made up of two fluids, or else of two forces—many authors say fluids. Now, if it be so, this electro-negative fog may be one of these fluids turned into a fog; but the report of that committee says they are forces, still speaks of them as fluids; but all are agreed that there are two of them whether force or fluid. The one is called positive or plus, or more than something; and the other is called negative, or minus, or less than nothing; and if we add the two together we shall have plus added to minus, equals nothing. But we would say, Don't do it! Now, what is an electro-negative fog, we wonder? To return to what is called static electricity, we are told that there are two kinds of it also. The one kind is a something, and the other is a nothing, and less, the same as dynamic electricity; for the two added together make no electricity at all. They are also called positive and negative fluids or forces, and also vitreous and resinous electricity—that is to say, that the electricity called positive is excited on glass, by the glass being rubbed, and the electricity called negative is excited on sealing-wax, by the wax being rubbed; that these two electricities can be isolated, and any portion of each can be carried away in a suitable carrier; but if equal portions of the two be added together, then there is no electricity to be found. Besides, it is stated that the electricity which is something, can never be excited without the electricity which is nothing making its appearance somewhere close by, and that this extraordinary occurrence takes place through the decomposition of a neutral electricity, whose constituents are this something, which is a vitreous, positive fluid or force, and this less than nothing, which is a resinous negative fluid or force, and that this neutral, neitheral electricity is nothing; for when the two are united there is no electricity at all. Who knows, then, what static electricity is—whether it be

positive or negative? It is a fluid. It is a force. It is something. It is nothing, or less than nothing. It is neutral. It acts at a distance, and at the same time it is at rest. It repels. It attracts. It thrusts without touching. It pulls without any hold. What is so wonderful as this?

We cannot understand it. Then how shall we understand this blue electro-negative mist, when only one learned man has read his paper upon it, and as to its nature seems somewhat in a mist too, and no wonder! Our electricians are not quite agreed whether electricity is matter or force; but of late they have been inclining more to say that it is a force. If it be a fluid, we can understand how a fluid can be made into a fog or mist; that is, if it were one of those dense fluids called liquids; but if it were one of those called gases then it is not so clear to us. But if it be a force, then there is no help for it; we cannot make a fog out of force. We suppose that a negative force would simply be a negative of force, and that would be no force at all. But a mist that was a negative-force mist or fog would be a fog without any force in it, or it might be a mist without any of that particular force in it called the electric force. We could not understand that—at least the statement of it does not appear to contain a contradiction. But if it be a fog or mist, according to what we understand by these terms, it must be some kind of matter in a state of vapour. But, according to Mr. Glaisher, while other mists were driven away by the wind, upon this mist the wind had no effect; therefore it cannot be vapour of any kind. It is said that where this fog or mist was the thickest there were the least signs of cholera. Possibly the two may have some connection; and if they have, and if it be proved that the one acts as a preventive of the other, and if we could only make that blue mist at will, then we shall have achieved a conquest. About the existence of this fog or mist or whatever it may be, there seems to be no doubt; but to call it a fog or mist seems only to be misleading, for it does not appear to have the properties of a fog or mist according to our present notions of such things. But why make the thing more incomprehensible by calling it an electro-negative fog, when those who ought to understand these things best have not settled it in their own minds what it is to be electro-negative, or what that mysterious thing electricity itself is. A very slight glance at the writings of these gentlemen—the electricians—will show that about electricity, as about most other matters, we know some notable facts; and we use these facts empirically, but we have no science properly so called. Doubtless this wonderful force called electricity is concerned in every operation of nature, and, if we understood it better, many other things which now appear mysterious to us would be more clear. But what we want to know first is, is it a force? and, if so, how does it operate? that is, speaking mechanically, through what form of motion does it act; then we may understand through it how the magnetic force acts; and also chemical affinity,

cohesion, light, heat, and even gravity; for these forces seem all closely related, and this electric force seems most at our command. We hope, then, that our electricians will first turn their attention to these important matters; and after that it is probable they will not talk about electro-negative fogs.

MOGADOR.—*From the Anuario de Madrid, 1865.*

The city of Suerah or Mogador stands on a tongue or point of sand, which extends out a very few feet above the level of the sea, so that at high water it is surrounded by the sea on all sides. A chain of reefs extends from North to South outside the sand, and protects it from the surf and renders it inaccessible to boats on all sides, except to the Southward where the port is situated.

The city has a fine appearance, the houses and mosque being white, are very conspicuous, and the walls and rampart towers give it even some pretensions to grandeur. The illusion, however, vanishes on landing. Soon the streets are discovered to be narrow and filthy, as well as dark, although they do differ from those of other Moorish places being straight and level.

Yet the buildings present nothing remarkable: with a very few exceptions they are formed of high walls, flat roofs, in which may be seen windows, which should rather be called loop-holes. The doors are equally small and are always shut. The mosques do not differ much in their exterior from other houses, except in the elevated tower or minaret, which is always on one of the corners, and which is usually provided with Dutch tiles of different colours.

The market or *zoce*, corresponds in character with the rest of the city. It is held in a square, in which are arranged the bazars as they are termed, by voyagers and others, with little shops six to eight feet square, like cabins, with all kinds of English cottons, without order or arrangement, which serve the industrious of Fez and Marocco, in producing

But industry is in a low condition here, and is reduced to the actual necessities of life, and even these are much restricted. The corn, for instance, is scarcely ground, and without separating the husk, they make their bread, which, in consequence, is black and coarse. They are not more advanced in heroism and arms, contrary to the opinion entertained in Europe.

Commerce.—Nevertheless, the city of Suerah is one of the most important commercial ports of the empire, and its custom-house makes the best return of revenue to its treasury. Its port is the great outlet of the produce of the whole country, which consists of cereals,

hides, gum, wax, oil of almonds, dates, some ivory, and gold dust. But none of these things are produced in the neighbourhood of the city, which, to a distance of four or five miles from it, as a radius to the circle, consists of a barren moving sand; but they flow into it from the adjacent country, and are continually arriving there in large caravans, which bring by camels, all kinds of eatables.

Abundance of eatables, besides being cheap, are found at Mogador. In the market a bushel of good corn sells under 20 reis; barley, 14; a fine large fowl, 2½; a live partridge, 2; mutton, per pound, 1; a camel load of eggs, 4; and the rest at a similar low rate. The garden stuff is the only expensive affair.

An aqueduct which crosses the plain is the channel of water from the river Goshed to the city, which river falls into the sea, at about three miles to the southward of it. Other subterranean channels lead its produce to cisterns or fountains in different streets. There is one which is very large, which is well preserved by being closed over for use on only extraordinary occasions.

Watering Place.—The governor has had one constructed near the landing place of the port that vessels can water from, and this operation can be done with great facility at high water: the water itself being of excellent quality.

The city is surrounded by a wall, or rather a turreted wall, fortified at intervals by square towers, all alike, among which are some Spanish houses which were occupied by them when they were in possession. These which are of white plaister also extend into the interior of the city, dividing it into isolated quarters, which are again redivided, preventing communication by night. The principal divisions of it are three: 1. The citadel which is to the Southward, and the best in point of fortification, in which also the authorities reside—the consuls, European merchants, and the garrison. 2. The city proper, in which the Moors reside, and extends East and West; and 3. The Jewish town North of it, called the Juderia or the residence of the Jews.

This last is the worst of the whole place; the streets are most narrow, and form a kind of muddy labyrinth wherein their degraded race of people reside, in the most abject condition. The sea which breaks against the walls, falling always on their barrier in a kind of small rain or mist, which, mingling with bad odours of the port, produces a most disgusting state of atmosphere. It is only the prevalence of Northerly winds that prevents the spread of fever among the residents, and it is wonderful how it is, that in spite of this condition, they preserve among them, especially in the women, the remarkably handsome features which they possess.

Population.—Statistics are greatly at fault as to the amount of population of Mogador, which it makes from ten to twenty thousand souls. In a country, however, where the subject is unknown, it is difficult to arrive at exactness, and erroneous results more or less must be found. The opinion of the consuls who have resided there a long time, along with that of the under governor, assigns the population of

Mogador, at fourteen to sixteen thousand inhabitants, of which four thousand are Jews.

Fortifications in General.—The fortifications of Mogador are all of hewn stone, they are well constructed, and selected with skill and in good condition. These united with those of the island of Mogador, constitute a system so good, that in other hands would render it a fortress of considerable strength. But in these days it is not entitled to such a name, since the want of care and inaptness of the Moors has left the very key of the fortress at the mercy of an enemy, so that a single frigate could oblige it to capitulate without receiving a single shot.

The truth of this assertion, which may seem an exaggeration, would be seen after observing the kind of batteries it has, and their actual conditions, as well as that of the port; conditions which, if they had been known at the time, would have given to Spain a place of more importance than Tetuan, and much credit to the navy which would have captured it.

The Port.—The point of sand on which we have said Mogador has been built, and the chain of reefs by which it is surrounded, extends to the S.W., terminating in two islets, or dry rocks, quite inaccessible from the breakers which surround them, and of that peculiar stone which seamen call soboruco. From here the coast trends S.E., forming a roadstead with a sandy beach, which has a gradually rising flatness for a distance of four or five miles. A ruined tower may be seen on this sand, the part dilapidated being to the Northward, and following the line of the aqueduct will be seen the tomb of Sidi Mogodol; a large building flanked by four towers, called the house of the Emperor; a small mosque and the village of Derbit, and that of El Gorhed and a circular ruined fort, which is called Portuguese.

The Island of Mogador.—Facing the middle of the roadstead, the chord of which is about a mile in extent, there is an islet called Mogador, which is about 100 feet above the sea. From North to South this islet is about half a mile long, and it is about a mile and a half in circuit. It is elevated to the Eastward, and on all the other sides is surrounded by reefs and rocks, and only to the S.E. it has a small beach, on which landing is easy.

The island is quite covered from a certain height with sand and vegetable matter. Others, in fact the smallest, also of soboruco, are covered with pigeons and other birds, which build there without molestation. Salt is also found on these islets of very good quality.

Mouths of the Port.—The island of Mogador, with the roadstead, divides the entrance of the port into two. The Northern one between the island and the rocks off the city, is a clear channel of above 2·5 cables across, with 6 to 8 fathoms in it at low water. The heavy sea which breaks there all through the year, covers the rocks with foam, and extending across the channel, which it is necessary to pass quickly, to avoid the back set of the sea which would leave a vessel on shore; but by taking care to approach the island nearer than the coast, keeping on the line from the North end of the island to the Emperor's house, a vessel will quickly clear it without the assistance of a pilot, and well too it is, for there is not one in the place.

The Southern entrance, formed by a reef which extends from the island, and a sandbank from the southern shore of the roadstead is narrower than that to the northward, with less water, for it has only 3 or 3½ fathoms in it at low water, besides which the channel is tortuous and difficult to follow.

The port, or that space between the island and the coast which is about half a mile, has from 3 to 5 fathoms at low water, the ground being sand and shells. The directories recommend as the best anchorage, a part East of the island; but this is only for small vessels, for there is not more than 3 to 5 fathoms in it. Vessels of a moderate size should anchor in the well which is pointed out in the plan, where they will have at least 5 fathoms. Larger vessels must remain outside of the port, anchoring West of the Skala battery, about a mile from it, in 12 to 15 fathoms.

Winds.—Prevailing winds are generally from N.E., which throw in much swell, at a considerable inconvenience to vessels anchored there. Those inside are sheltered from the wind, but the swell is found on both sides of the island. The season from December to March, is called by the natives, *Liali*, when the wind blows hard from South and S.W., and having no shelter from them nor from the heavy swell which they bring, the anchorage becomes dangerous to ships without good ground tackle. A year seldom passes without the loss of some ship or other; but what ships have to be careful of is the coasters which come to embark grain, and which are not well provided with resources. The directories should undoubtedly warn masters of ships that come here of these troublesome craft: they say it is not available in the winter, and very insecure in the summer, recommending vessels to anchor further out, so that they may get under sail easily if required. But a steam vessel or ship of war may always consider herself safe, taking the precaution, if she is inside, to have two anchors down, one N.W., the other S.W., having the engine ready to assist the cables, if necessary.

Tides and Currents.—At springs the tide rises from 12 to 15 feet. The tides have their natural flow and ebb, but the current always runs to the Southward, and sometimes with considerable strength. The establishment of the port is 1h. 30m.

Landing.—Boats at high water may land at a rocky ridge on the beach, by a channel which leaves the reefs, and may pass the arches of a bridge of the fortifications and land on the beach on the other side of it, being more convenient; but at low water this is all dry, and one must land from shoulders at the South end of the reefs.

Carabos.—The traffic of the port and fishing is carried on by some twenty country boats or *carabos*, all of the same size, and equally badly constructed. These boats are 25 feet of keel, and 5 of beam and have six oars as huge as the boats themselves and those who man them. The very sight of them is sufficient to establish the character of the Moorish boat, which may be considered as the pattern of monstrosity. All hands vociferate, all hands give orders, and every one

rows at his own pleasure. At night these boats lie ashore on the beach of the port.

Batteries.—The port and the city are defended in the following manner:—

Commencing on the West, there is a large battery called the Skala, on the walls of the town, which in this part are stronger than others. This battery commands the anchorage of large vessels, and protects the Northern entrance. It mounts 36 guns, but has now only 19 and a mortar. To the Northward this battery is terminated by a fort, which mounts four guns.

Following to the Southward, we find the batteries called those of the *marina*, separated 200 yards from the city. One lying in a direction W.N.W. and E.S.E., is built on the shore, commanding the interior of the port. It has twenty embrasures and eleven cannon. To the E.S.E. it is terminated by a square tower, which may mount three guns. In the opposite direction and in continuation is a bridge of five arches, of good hewn stone, which connects the coast with the nearest islet. This bridge carries a battery with 14 guns commanding the port, and four to the Northward, which with the square tower flanks the battery of the Skala; but at present it has no guns. On this side the bridge is terminated by a square tower similar to that at the opposite extreme, and between the batteries of the Marina and that of the bridge is the entrance of the Marina decorated with a gate of no bad taste.

On the island and tower stands another battery in a direction at right angles to the bridge, for the protection of the entrance of the port, mounting 14 guns, and terminated by a circular fort of 10 guns, the fire of which commands the mouth of the port and part to the Eastward.

On the islet immediately to the West there is another circular fort which is in ruins.

There are two circular batteries to the Eastward, between which is the entrance of Marruecos; the first mounting 10 guns, some of which enfilade the anchorage, but the other has no guns, although intended for four.

There are two other batteries to the North of the city, one of which only has two guns.

Between them is the Dukelah gate, which is a solid arch carrying a battery of four guns, all complete, and which terminates the fortifications on this side.

On the island of Mogador there are six circular batteries of modern construction, and all of similar size, mounting five guns. They have each of them a small building which may serve as a retreat, although it does not appear to be bomb proof. These batteries respectively protect the two entrances and the interior of the port: two to the North command the city and cross the fire of another.

On the island there is also a little mosque with a minaret (which is the first seen from sea) and three guardhouses for the soldiers.

Artillery.—In the town separated from the island, at present,

there is no other artillery than that mounted in the forts which may be thus enumerated: A 10, B 14, CC 9, D 0, E 11, F 19; and a mortar, G 4, H 2, K 4, L 0, M 0, N 17.

These pieces differ in calibre from 24 to 8-pounders; they are all old, and only a third part of them being of bronze are available. The rest, which are of iron, are Russian manufacture, of various calibre. The greater part of them with enlarged vents, others have their shot too large for them, and all are in a pitiful state of oxidation. They are mounted for mere show, and the proof is, that in order to fire a salute of 21 guns, they had to make use of the batteries A, B, and F, which make up 44 pieces.

The above mentioned collection of artillery appears to be mounted in a manner worthy of it. The carriages are for the most part *en règle*, but the trucks, like the wheels of Galicia and the Asturias, are masses; that is without spokes of about five feet in diameter, all solid. There are others of somewhat better construction, intended originally for duty at sea; and in one of these the mortar above mentioned is placed, which is nine inches in diameter; but there is not one piece among them all that would stand the effect of a second discharge with shot.

The batteries on the island of Mogador, in this particular, are even worse. There are not more than 12 iron guns among them all in the condition above mentioned; but being without carriages they are placed on their trunnions, lying supported by stones in an imaginary imposing position. The island is abandoned, from which it would seem to be considered of little importance, and there is not a single man charged with the duty of looking after the fortifications and the buildings, any one being permitted to examine scrupulously that pleases.

Garrison.—The garrison of Mogador consists of one thousand men, from who are called the King's men, the greater part of which are either negroes or mulattoes. Of these eighty only are present and do duty. The rest have permission to work in the moat or find what work they can, as the Emperor's allowance is not more than 20 reals the month, on which they are to subsist.

Their uniform and arms are the same in which they appeared in the last Spanish war. A *chilaba* or cloak, a red cap and clumsy boots, compose the first part of their dress: the second is their musket, a poignard, a kind of calabash for powder, and a leathern bag for bullets.

Plan of Attack.—Such is the state of defence of the port and city of Mogador. A single frigate, as before said, anchored to the Southward of the island outside, and free from three batteries, A, E, and N, landing a hundred men on the said island by the beach, with a fire of 10 or 12 guns, and another on shore which may be thrown up within four hours, would reduce the place to terms within that time.

This should also be the plan of attack, even when the disposable force were greater, the object being to attain this result without losing any men.

The French in 1842, deficient of information, came in by the

Northern mouth, and had to endure the fire of all the batteries, which, although badly served, did them some mischief. Within, the port seeing the importance of the island, they directed their attack on it, and were not long in making themselves masters of it, although it was then garrisoned by six hundred men; but the greater part of them surrendered at discretion, after a kind of mock resistance. The island being taken, there need be no apprehension of an attack on it, for, as above said, there are no boats by which they might approach it.

The city would defend itself with the same facility, and with as few men for the conqueror, by its isolated position, and from there being no heights or ground in the neighbourhood; but he would have to bring his own provisions for his garrison, as he could not reckon on those of the country; and in case of the aqueduct being cut off which would most likely be done, he would have to obtain water by boats from the river El-Gorhed, which is some three miles, or fit up a mode of distilling sea water, that would be a very simple matter.

Sundry Matters.—The present assistant-governor is a man of some information, and good natural talents; he has travelled in Europe and speaks a little the Castilian language. He is named Abd-el-Kader, like the celebrated Emir who distinguished himself by his humanity at Damascus. He is affable and attentive to strangers, or at least he was very much so to us. On my visiting him he expressed some surprise, because the ship had not saluted the garrison; but on learning that we had no guns, and that another vessel would soon arrive that would perform that ceremony, he was quite satisfied; and on the arrival of the *Vasco Nunez*, it was arranged that he should return the salute with one gun more, or 22 for those of the steamer. When her commander landed, they saluted him also with seven guns from the batteries, and a guard of honour of sixty men received him at the mole and escorted him to the custom-house. This guard, in imitation of European custom, marched in column, four abreast, and the small piece of artillery which some of the soldiers carried with a piece of red cloth over the shoulders.

The town appeared to be prepared for our arrival, and also averse to it; but the first impression being over, and observing among the Spaniards a carelessness to which they were not accustomed, they changed their opinion, showing no dislike whatever and even shewed some regret at our short stay.

The names of O'Donnell and Prim were well known to them, and they inquired if those officers would never pay them a visit, shewing a great desire to know them; inquiring also with much interest, when they effected the evacuation of Tetuan.

They seemed to be fonder of trade than of war. At the commencement of the last, they so much feared either the Spanish troops or the mountain races, their neighbours, that they abandoned the city with their families and effects, and not more than 200 remained with the assistant-governor, who tried in vain to restrain the fugitives and to find some natives to garrison the island of Mogador.

To be concluded in our next.

THE ATLANTIC CABLE.—*Concluded from our last number, p. 486, with a Chart.*

The return of the *Great Eastern* to Liverpool, enables us to complete in our present number, this interesting subject from our last, page 486, with a chart. The diary thus concludes:—

Monday, Sept. 3.—At 9.15 a.m. yesterday, the splice having been made between the picked up and that in our main tank, the critical operation of slipping from the bow to the paying-out machinery aft was completed. It was an anxious time. As the first bight was let go eyes were strained to see the next drop clear, and so rapidly was the cable passed along the starboard side that one was obliged to run at a fast pace to see it go to the stern, and on to the paying out wheel. At 9.22 the paddles were started ahead, and we commenced to pay out in 1,900 fathoms.

By noon we had paid out 28.96 miles, and were in lat. 51.56.30 N., long. 36.42 W., having given for slack 25.91 per cent. On receiving the Greenwich time direct—through the recovered cable—as formerly Staff-Commander Moriarty found that the mean accumulated error (in 25 days) of the remaining four chronometers, by Mr. Barraud, of Cornhill, required a correction of six-tenths of a second only.

All went on well during the day, several messages were sent from the ship to England and Newfoundland, and we got the current news from home. We learned after dinner that Captain Commerell had arrived in the *Terrible* at St. John's, at noon, and were also informed by Mr. Kerr, commanding the *Lily*, that he and the *Margaretta Stevenson* would meet us at the rendezvous at the entrance of Trinity Bay. Orders were sent to the agents, Brooking and Co., of St. John's, to bring stores for the *Great Eastern* to Heart's Content, and Mr. Wyatt, of that house, replies that he will be there on Saturday morning! And so, being in the middle of the Atlantic ocean, we talked to Valentia, Valentia to Newfoundland, Newfoundland to Valentia, and Valentia back to us, a distance of nearly 5,500 miles.

Captain Anderson wants to know what sort of weather there is in Newfoundland, and while sitting with Mr. Willoughby Smith, in the electrician's room, I saw the message sent to Heart's Content, *via* Valentia, and in less than ten minutes the answer comes back, "Wind north, light breeze!" What will Lieutenant Maury say to all this? For we hear that he has told the public that it is an impossibility to pick up the cable of 1865. What will Professor This and Doctor That and Philosopher the Other say, who have been shaking their wise heads for the last year? Where are the abstruse calculations about forces engaged in lifting the cable? Where the theories about volcanic action in certain places well known to them at the bottom of the Atlantic ocean? What about the certainty of the failure of gutta percha as an insulator? Why, simply and practically this, the Atlantic Telegraph cable of 1865 has been picked up after a fortnight's hard work, and we are sending and receiving messages through it.

But now we have to try and finish the work by landing it at Heart's

Content, and have to encounter all the difficulties inseparable from ocean cable laying. It was only this morning at three o'clock, that we were reminded of our old enemy "Foulflake." A part in the coil brought away the next turn with it, but before it could get up in the "eye," it was held back by the watch in the tank. The order was given to stop the engines, but it was all right before the paddles and screw ceased to revolve. It is a curious coincidence that this occurred almost at the precise spot where the cable was lost last year. It is blowing very strong from the E.N.E., with a heavy sea. Towards noon the glass was going up, and there is evidence that the wind is about to moderate.

Tuesday, Sept. 4.—In the afternoon of yesterday the wind moderated. The ship has evidently been much affected by a strong current carrying her to the N.E. The large per centage of slack can only be accounted for by the ship not having gone her course. Taking Captain Anderson's observations, we had paid out 32 per cent. of slack at 8 p.m. yesterday. The night passed very quietly, the wind having gone down completely.

Friday, Sept. 7, Noon.—The progress of the ship and the paying out of the cable since Tuesday last, have been in every way satisfactory. Last night a congratulatory telegram came to Mr. Cyrus Field from Mr. Low, president of the New York Chamber of Commerce, requesting him to send a message to be read at a meeting of that body to be held to-day. It was thought right to send a reply in the names of the directors on board who have accompanied the expedition. It was in the following words:—"The undersigned directors on board the *Great Eastern*, send their greetings to the New York Chamber of Commerce, and take advantage of the success which has crowned the efforts of the Telegraphic Construction and Maintenance Company, to recover the cable temporarily lost last year, to convey to them through it and the cable laid in July last, the hope generally entertained throughout the United Kingdom, that the telegraphic communication now established between that country and the United States, will tend to promote peace and harmony between them. (Signed)—Daniel Gooch, chairman of Great Ship Company, and director of the Telegraphic Construction and Maintenance Company, and of Anglo-American Company; Aug. T. Hamilton, Cyrus W. Field, directors of the Atlantic Telegraph Company and Anglo-American Telegraph Company." The *Medway* has just been despatched to look for the *Terrible*, whom we expect in a few hours, as she left St. John's last night. The weather is very fine, and the sea quite smooth. We hope to be well up to the bay by twelve o'clock to-morrow.

Saturday, Sept. 8.—It was not until five p.m. yesterday, that the signalman made out the smoke of the *Terrible* on the horizon, and on coming on deck after dinner we saw her plain enough, and close near her the *Margaretta Stevenson*. At eight o'clock a boat was sent from the latter vessel with Mr. Kerr, R.N., who was to pilot us up the bay, and the *Terrible* sent a boat with our letters, which had arrived by

the last mail. By ten p.m. we saw the lights of Catalina and Bonavista, on the Northern shores of the entrance to Trinity Bay, and Bacalieu on its Southern side.

It continued calm all night. This morning a glorious sunrise welcomed us into Trinity Bay, whose broad waters were as still and placid as a lake; and as the morning light became more distinct, the whole cable squadron were well together. Her Majesty's ship *Terrible*, her Majesty's ship *Lily*, with his Excellency the Governor of Newfoundland and suite on board; the *Medway* and the *Margaretta Stevenson*, and the *Hawk* (formerly her Majesty's ship *Plover*), from St. John's, with a large party on board, joined the fleet, and we proceeded on until six o'clock uninterruptedly.

At that hour the wheels of the *Great Eastern* were suddenly stopped, the alarm of a "fault", in the cable having been made from the electrician's room. While a message from Valentia was being received, the spot of light disappeared from the scale of the galvanometer indicating "dead earth." Instructions were speedily given, and the cable was cut immediately forward of the paying-out machinery, and tested through a wire leading to the testing-room; the result of which was a declaration on Mr. Smith's part, that the fault was not far off. He next tested the sea end, and very much to his own gratification, as well as to the joy of every one on board the ship, it was reported to be perfect. Valentia, on being called, gave an immediate reply. Communication was now stopped, in order to make a splice with another length of cable in the after-tank, and in about half an hour it was completed, and the ship on her way up Trinity Bay, Heart's Content being distant thirteen miles.

The discovery of this fault was instantaneous, and showed the great practical utility of Mr. Willoughby Smith's new testing arrangement, which has already been described. We went on paying-out until 2.20 Greenwich time, or 10.45 ship's time, and shortly afterwards the *Terrible's* paddle-box boats, under the command of Lieutenant Curtia, first-lieutenant, and Lieutenant Arundell, were under the stern of the *Great Eastern*. The cable was then cut and handed into his charge to pass to the *Medway*, on board of which was coiled the shore end.

The big ship, having now completed her work, steamed slowly into the harbour of Heart's Content, followed by the *Terrible*, *Lily*, and *Margaretta Stevenson*. The splice took about two hours to make on board the *Medway*, and at three p.m. (ship's time) she had arrived in the harbour, and anchored opposite the Telegraph-house. The shore end was now passed to the boats of the *Terrible*, under the immediate superintendence of Mr. Canning, chief engineer, Mr. Clifford, and Messrs. Temple and Loudons. Shortly after four o'clock it was landed amidst the enthusiastic cheers of those who were gathered about the beach, a royal salute being fired from the *Terrible*, *Lily*, and *Great Eastern*. Passed up from the shore in the trench leading to the Telegraph house, the end was speedily handed into the instrument room, and the connexions made. The cable crew were loud in their congratulations to their chief, Mr. Canning, and he and his able assis-

tant, Mr. Clifford, had to submit to the process of being chaired around the large space adjoining the Telegraph-house, where the end was coiled. Mr. Field received a similar honour.

The Governor, the Lord Bishop of Newfoundland, Mr. Gooch, Captain Hamilton, Mr. Field, and Mr. Deane, were in the operator's room, and the first message having been sent, and an answer received from Valentia, a loud cheer was given by those assembled there, his Excellency and the Bishop saying a few words appropriate to the occasion. An address of congratulation from the Commercial Society of St. John's was presented to Captain Anderson, Mr. Canning, Mr. Gooch, Mr. Field, and the principal executive officers engaged in the cable expedition, to which a suitable reply was given, and a large party of ladies and gentlemen were entertained on board the ship. All night Mr. Laws, of Mr. Latimer Clark's electrical staff, was engaged in testing the cable, Mr. Latimer Clark himself being similarly occupied at the Irish end. Mr. Gooch sent the following message to Lord Stanley:—"Mr. Gooch has the pleasure to inform Lord Stanley that the cable of 1865 was recovered from the bottom of the Atlantic on the second of this month, and has been safely landed to day in Heart's Content, the recovered cable being in the most perfect condition. He also takes this opportunity of saying how much all men engaged in the undertaking were gratified on receiving a newspaper to-day, to see the kind reference made to their efforts in her Majesty's speech on the closing of Parliament."

Sunday, Sept. 9.—Shortly after breakfast this morning, Mr. Gooch and Captain Hamilton went ashore to the Telegraph-house, and the test messages required by the contract between the Anglo-American Telegraph Company and the Atlantic Telegraph Company were sent. This official act being completed, the line was formally handed over to the Anglo-American Telegraph Company. The "Blue Peter" was now sent up to the fore of the *Great Eastern*, and everything being in readiness, Mr. Halpin was again seen on the bow superintending the weighing of the anchor. But this time he was doomed to a disappointment of a very peculiar kind. When the anchor stock came up to the surface of the water, it was found to be minus the anchor itself. So the big ship had lain quietly all night in the harbour, where it blew half a gale of wind, and upon looking at her position, she did not appear to have shifted a yard. The anchor was one of Trotman's. At three p.m. we were under way, amidst the cheers of the *Terrible* and *Medway*, repeated over and over again. Mr. Cyrus Field, on leaving the ship for the latter vessel, in which he goes to lay the cable from Cape Ray to Cape North, was heartily cheered by the whole crew. There is every probability of the weather being fine. All on board are looking forward with happiness and pleasure to meet their friends in England, and feel proud in having been identified with an enterprise which will ever be memorable in the history of the world.

Thus has ended the great enterprise of depositing these cables on the bed of the stormy Atlantic, that formidable ocean which was aptly

called by those who had first daily witnessed its wide expanse, "*the Sea of Darkness*." It may now be called the safeguard, the protector of our immediate intercourse with America. For large as its range may be, the cable may be considered safer under its cover than many another nearer home.

We further read in the report which we have here made use of from the special correspondent of the *Daily News*, that when all was successfully accomplished, and the great ship was homeward bound, the prevalent lightheartedness found vent in private theatricals, and a pointed burlesque by Mr. J. C. Deane and Mr. Poore was written, lithographed, and acted on board. *Contentina* was the title of this production, and the whole strength of the company was enlisted to ensure its success. The jokes and skits at the peculiarities of the leading people on board were plentiful and humorous, and the following extracts show the character of the songs :—

Air—"Let the toast pass."

Here's to the Cable of dear fifty-eight,
Here's to the one sixty-five, sir,
That we left in the sea in a critical state,
For which we intend to go dive, sir.

Chorus—Let the toast pass,
Long life to our Glass,*
His cables are good, be they hemp, wire, or grass.

The picking up itself was complimented thus:—

Air—95.

The grappling rope at length has come,
Winding slowly round the drum;
And on its end as I'm alive,
Hangs the rope of '65.
For Anderson, who guides the ship,
Let's shout and cheer with a hip, hip, hip.
Moriarty, too, who straight did dive,
At the dear old rope of '65.

Experience has done the trick,
And solved the question double quick.
What pleasure Canning must derive,
From a sight of the rope of '65.

The Bishop of Newfoundland joined the party at Newfoundland, and arrived here (Liverpool) in the *Great Eastern*.

Another duty yet remains to be performed, one which our countrymen are known not to neglect, which is the welcome to those who have achieved this great enterprise, and which appear sby the following to be decided on.

A special meeting of the council of the Liverpool Chamber of Commerce, was held yesterday (the 18th), Mr. C. E. Rawlins in the

* R. A. Glass, Esq., constructor of the cable.

chair, to consider the advisability of inviting to a public banquet, Captain Anderson, of the *Great Eastern*, and the gentlemen connected with him in laying the Atlantic cables. The chairman stated that they had communicated with Sir Stafford Northcote, the President of the Board of Trade, who had promised to preside at the proposed banquet, if it could be arranged to take place on Monday the 1st October. On the motion of the chairman, seconded by Mr. P. H. Rathbone, it was resolved that the banquet should be fixed for that date, and that the general purposes committee should be requested to carry out the necessary arrangements. Mr. Clark said the matter had been most favourably received on 'Change, and several gentlemen had expressed to him their willingness to act as stewards. The Secretary then read the draft of an address to be presented to Captain Anderson, and it was resolved that Captain Anderson should be communicated with to-day, to ascertain when it would be convenient for him to receive the address on board the *Great Eastern*.

The big ship is stated to have been navigated by Capt. Anderson, "from Crook Haven, *by the lead*, to Holyhead, and her arrival timed to a couple of minutes" of her sighting the light. In fact the whole of this difficult enterprise has been conducted with that good judgment in its entire management which only great experience and consummate skill with good fortune could possibly have achieved.

THE CHINA REGATTA.

An interesting run home from the port of Fow-chow-foo has been made by the China fleet of clipper ships for a premium offered by London brokers, for their first season's teas. During the whole voyage of upwards of 16,000 miles, the closeness of the ships to each other has excited much interest in almost every maritime port, both at home and abroad. There were nine ships engaged in the contest, but the race has been principally between five. The names of all the vessels, captains, and owners, appear in the following table, with other particulars relating to them:—

Names	Captains.	When Sailed.	Pass Anjer.	Pass Cape.	Cross Eq.	Off Lizard.	Arr. Downs.
Ada	Jones	6 June					
Ariel	Keary.....	30 May	20 Ju. A.	16 July	5 Aug.	5 Sept. A	6 Sept.
Bl. Prince	Inglis ...	3 June	29 June				
Chinaman	Downie ...	5 June					
Fiery Cross	Robinson	29 May	18 June	15 Jy. P.	4 Aug.		7 Sept.
Flying Spur	Ryrie ...	8 June					
Serica	Innes.....	30 May	22 Ju. P.	22 July			6 Sept.
Tae ping ...	M'Kinnon	30 May	20 Ju. P.			5 Sept. A	6 Sept.
Taitaing ...	Nutfield	31 May	22 Ju. P.		12 Aug.		9 Sept.

Ships.	Tonnage.	Where Built.	Car. Tea in lbs.	Owners.
Ada	686	Aberdeen		Wade and Co.
Ariel	853	Greenock	1,230,900	Shaw and Lowther.
Black Prince ...	750	Aberdeen		Findlay and Co.
Chinaman	688	Greenock		Park Brothers.
Fiery Cross	689	Liverpool	854,236	J. Campbell.
Flying Spur.....	731	Aberdeen		Robertson and Co.
Serica	708	Greenock	954,236	Findlay and Co.
Taeping	767	Greenock	1,108,700	Roger and Co.
Taitsing	815	Glasgow	1,093,130	Findlay and Co.

The hardest run was between the *Fiery Cross*, *Ariel*, *Taeping*, and *Serica*, but the former lost time in the Downs, being compelled to remain at anchor, although she had the advantage of a start of one day over the others. The *Serica*, *Ariel*, and *Taeping*, crossed the bar of Foo-chow-foo, in company together, the 30th of May. The *Taitsing* started the following day. There was a fair wind (N.E.) blowing, which the *Fiery Cross* kept to 19 20 N., when they met with a few hours' calm and Southerly wind. N.E. wind fresh, again set in, which carried them to the Paracells reef, on the 3rd of June, without sighting it. The *Serica*, *Taeping*, and *Ariel*, met with similar weather. The *Fiery Cross* saw nothing of them until noon of the 7th of June, in lat. 9 37, when she passed a large ship on the opposite tack, believed to have been the *Ariel*. To the Southward of the Paracells they met with strong S.W. winds. As far as we have been enabled to ascertain, the ships passed the lighthouse at Anjer, Straits of Sunda, as follows:—*Fiery Cross*, at noon on the 18th of June; *Ariel*, on the morning of the 20th of June; *Taeping*, on the afternoon of the 20th of June; *Serica*, at 6 p.m. on the 22nd of June; *Taitsing*, at 10 p.m. on the 22nd of June; *Black Prince*, on the 29th of June.

At this time the *Fiery Cross*, evidently had the lead, while the *Taitsing*, which left Foo-chow-foo on the day after the others, had overtaken the *Serica*, the *Fiery Cross* heading both by two days. From Anjer they carried good trade winds to the meridian of Madagascar. The *Fiery Cross* passed Mauritius on the 30th of June, the *Ariel* on the 2nd of July.

The Cape of Good Hope was passed by the *Fiery Cross* on the 15th of July, at 10 p.m.; the *Ariel* on the next day. Wind, S.E. to E., and N.E. The *Serica* doubled the Cape on the 22nd.

The equator was passed by the *Fiery Cross*, 6 p.m. on the 4th of August, and *Ariel* on the 5th.

On the 9th of August, in lat. 12 20 N., the *Fiery Cross* signalled the *Taeping*, and continued in company till the 17th, with wind variable and light. In lat. 27 52, long. 36 54 W., a fresh breeze sprang up, which took the *Taeping* out of sight of the *Fiery Cross* in four or five hours. The *Fiery Cross* was becalmed, and was not making one

knot per hour for twenty-four hours. This circumstance is alleged to have lost her the race. On the 29th she reached lat. 41 5' N., long, 35 51' W., and at 10 a.m. on the 6th of September she sighted the Isle of Wight, bearing N.N.W. with a wind W.S.W., blowing hard.

The *Ariel* and *Taeping*, which had lost sight of each other for seventy days, on the morning of the 5th instant at eight o'clock, recognised each other off the Lizard, running neck and neck up the Channel, under every stitch of canvas that could be set, with a strong westerly wind. During the whole day the two ships kept their position, dashing up the Channel side by side in splendid style, sometimes almost on their beam ends, every sea sweeping their decks. On approaching the pilot station off Dungeness, they each fired blue lights to signalise their position. At daybreak the pilots boarded them at the same moment, and the race was continued in the same exciting manner, till they arrived in the Downs, where they both took steam-tugs to tow them to the river. The ships had to shorten sail to enable the tugs coming up and picking up the hawsers to take them in tow. This was about eight o'clock a.m., the tugs starting almost simultaneously, and both ships still neck and neck. The *Taeping*, however, was fortunate enough to have a superiority in the power of her tug, and reached Gravesend some time before the *Ariel*. The *Serica* followed closely upon them. She passed Deal at noon, and got into the river with the same tide which carried the *Taeping* and *Ariel* up the river to the docks, when the result of this extraordinary race was declared to be as follows:—

<i>Taeping</i> , docked in London Docks, 9.45 p.m., 6th Sept.	1
<i>Ariel</i> , docked in East India Docks, 10.15 p.m.	2
<i>Serica</i> , docked in West India Docks, 11.30 p.m.	3

The *Taeping*, therefore, was the winner of the premium about £500, the bills of lading of each ship setting forth that 10s. per ton extra would be paid to the first sailing vessel in dock with new teas from Foo-chow-foo. The *Fiery Cross* arrived in the Downs on the 7th, and was compelled to bring up to an anchor on account of a heavy gale blowing, when she remained some time. She, however, managed to get into the London Dock by eight o'clock on Saturday morning, the 8th, some twenty-eight hours after the *Taeping*. The fifth ship, the *Taiting*, arrived in the river on Tuesday forenoon.

During the past few days the excitement occasioned by the probability of the arrival of the first ship in this great annual ocean race from China was unprecedented. The friends of each vessel have been supporting their favourite ship by betting considerable sums. In no previous year has so much interest been centered in the result of this race, and from the fact of so many Clyde-built ships being engaged in the competition Scotchmen generally have largely partaken in the speculation which has existed at almost every maritime port both in Britain and China. It will be remembered that last year the ships *Fiery Cross* and *Serica* left Foo-chow-foo for London together on the 28th of May, both having been towed to sea by the same tug, and

that both vessels arrived off the Isle of Wight simultaneously on the 10th of September, after a passage of 106 days. By a stroke of good fortune, however, the tug sent out by the owners of the *Fiery Cross* sighted her, took her in tow, and arrived in London one tide before her rival, the *Serica*, the latter having failed to sight the tug on the look-out for her.

Singular to observe, the *Taeping*, *Ariel*, and *Serica*, were all built by Messrs. Steele and Co., of Greenock. The *Taeping* and *Ariel* were constructed on the composite principle of wood and iron. The *Serica* is iron built.

The time occupied on the voyage by the three ships has been 99 days, being seven days shorter than the time occupied by the *Fiery Cross* and *Serica* last year.

The *Ariel*, which is a new ship, was the first favourite among the shippers in China.

There is not only excitement about this race from China to England, but also a wholesome emulation is established not only in the superiority of sailing, but also in the essential of navigation, in adopting the best course on different parts of the voyage, in crossing the line twice, and in taking the utmost advantage possible of favourable wind, light or strong, so as to turn the slightest to account. The fact of a premium on speed of the whole voyage, and the knowledge that a race is being run, is an excellent incitement, the benefit of which is so far evident that we have no doubt of its continuance in future.

VOYAGE OF THE "PIONEER."—No. 1.

Some particulars of a passage to India in a vessel not built for sea-going duty, may be useful to nautical men, and may also have some interest for general readers. The present is therefore the first of two or three papers, for which the author solicits a place in the *Nautical*.

On the 2nd of January, 1860, I left Falmouth in a small flat-bottomed iron steamer, drawing four feet, exclusive of her temporary keel, and rigged as a four-masted schooner. Our destination was Calcutta, provided we should ever reach that place, which many persons doubted, and not without reason, for of five vessels of a similar description three foundered, and one put back dismasted. It proved that *Pioneer* was the only one which did reach her destination, after the most narrow escapes from foundering, and was saved only, at last, by running her where no vessel had been run before.

This vessel, the *Pioneer*, was built for navigating the shallow waters of the River Ganges, and when it was resolved to sail her out instead of sending her out in pieces, a temporary keel was given her, and a pair of *lee boards* fitted, like those in the Dutch galliots. Whatever else could be done to make a frail craft seaworthy was at-

tended to, one only serious defect excepted, which nearly proved fatal, viz., *want of strength amidships.*

Her length was 150 feet, with a depth of hold of seven feet. All her steam gear was stowed away, and she looked entirely like a sailing vessel, only of a very strange build and rig. Her crew numbered eighteen all told, and she was provisioned for six months, with the intention of touching at no port on the way, from an idea that if she did go in anywhere there might be no getting her to sea again.

After leaving Falmouth, the wind changed again to the S.W., when we were off the Coast of Scilly, and I was glad to get into St. Mary's Road there, and so be saved from being blown up Channel again.

While waiting in St. Mary's Road, wind-bound from the 3rd to the 6th of January, I had a second pair of lee boards fitted, with a view to prevent the excessive drift of the vessel when sailing with the wind ahead, for as to sailing close hauled that was out of the question. As it is likely that a good account of these isles is to be found in the *Nautical Magazine** I will not trouble you with any description of them, only remarking that I think it would be better for ships to take shelter here in foul winds than to be beating about in heavy weather, with great wear and tear and danger of collision.

On the 6th of January we made a fair start from Scilly, with a high easterly wind, and had lost sight of St. Agnes Lighthouse by sunset. Next to the Eddystone, if not before it, this eminently useful lighthouse is the result of remarkably skillful, difficult, and often interrupted engineering; and there can be no doubt that from the position and excellence of their light many ships are saved from wreck every year.

On the 7th we were fairly out at sea, with a good offing, yet not so far as to prevent our being blown back again had the wind returned to the S.W. The vessel was found to steer well in smooth water, and to stand well up under her canvas, and to take in no water, although her deck was only three feet above the sea. We made fair way to the W.S.W., and by the 12th had gone 300 miles, when the wind gradually drew North, and finally settled in the Trade quarter, with fine weather, to the content of all on board.

One of the difficulties in a shallow iron vessel at sea is the *rapidity* with which the bottom gets foul. Long before we reached the Equator, the *Pioneer's* bottom was so covered with barnacles that she would neither sail nor steer. In a ship of ordinary draft the fouling matter is chiefly below the water line, but in a shallow vessel the entire bottom gets covered, and that so quickly as to require scraping every few days, in fine weather. This was our first serious difficulty in the *Pioneer*, and after exercising all the inventive ingenuity which could be mustered, a floating scraper was rigged, and hauled about under the bottom with fore and aft and cross ropes, which answered very well. It was like a large currycomb, and was made of strips of sheet iron fastened on to a small raft, about four feet square, and buoyant enough to press up against the bottom when hauled under,

* Some account of them appears in our last year's volume.—Ed.

and so scraped off the barnacles wherever it touched. But for this the vessel not only would never have reached India, but would never have got out of the Atlantic tropical seas, and would have shared the ill fate of that strange ship in which the "ancient mariner" came to such tragic grief.

On the scraping days the barnacles might be seen streaming away astern in large quantities, and on one occasion the scraper dislodged an immense star fish, not less than five or six feet across, which will give a good idea of the state into which a shallow iron vessel's bottom will soon get if no remedy is applied. I strongly recommend the use of a scraper of this description where a foul bottom or sides occur, and this cure will suggest to the nautical reader the importance of having the *right kind* of composition* for the bottoms of iron ships.

On the 22nd of January the vessel made 200 miles, which was the best day's run she had on the way down to the equator. On the night of the 24th, between fifty and sixty flying fish came on board, and two little dolphins, about three inches long, attracted by a light which was hung up for the purpose. During the passage, flying fish were often caught in this manner, for the vessel was so low on the water that in their flight they would go right over her. It was an interesting sight in calm weather to look into the sea and watch the extraordinary variety of minute forms of animal life in it. On one occasion I dipped up a jelly-like creature, with the head and trunk exactly like an elephant, which I should have preserved had it been possible. Many snakes were seen, but never the *sea serpent*, of the existence† of which, however, I have no doubt.

We lost the N.E. Trade on the 29th, "in lightning, thunder, and in rain," and after drifting about helplessly for many days, we crossed the Line on the 12th of February, by which time the vessel's bottom had again become very foul. While lying here becalmed we caught a shark one evening, and the next morning one of the pilot fish was swimming about the vessel. It would be interesting to know what becomes of these little fish after a shark is killed—whether they lead a solitary life, or attach themselves to another shark—or whether they become the prey of some large fish, or whether they follow their lamented chief into the waters of oblivion.

On crossing the line we had a visit from that old *sea ruffian*, Neptune, who happened on the occasion to be very well behaved, which is very much more than can be said of his visits generally. As our vessel was small and we had no passengers, he did not appear in great state, and had only a few followers; and I was glad to remark that the most distinguished among these, the *barber*, was a harmless looking fellow, for our engineer had not been this way before, and would rather have lost a month's pay than the appendage to his chin, commonly called his beard. As Neptune is the only heathen of note who has come down to our days, and as he is upon the

* The best we know of is Peacock's. See Advertisement sheet.

† This is the first opinion of an experienced seaman agreeing on this subject that we have yet recorded.—ED.

whole a favourite with sailors, I do not think he should be refused admission on board of our ships, still I think he should be kept within certain bounds of licence, and, although *he* is a heathen, he ought not to be allowed to treat us as if *we* were heathens also. And especially that hateful barber of his should be compelled to exchange the ancient razor and *lather* for something more in accordance with modern taste and manners. It will not have escaped the notice of seamen, that the dress of Neptune's attendants have sometimes a modern look, particularly the dress of his wife; and as this is an intimation of his willingness to reform his court, we may hope that among other changes will be those of the prescriptions, and especially of the *medicines* of his *doctor*, whose diploma cannot be in the least like those issued by our Royal College of Surgeons, nor his pharmacopia like that among civilized people.

By some means Neptune always knows whether he is expected on board or not, and as I had mentioned to the crew that he would pay us a visit, we were not at all surprised when we heard him hail the vessel, just as we were passing the equator. After enquiring the name and destination of the *Pioneer*, he was seen coming aft with his wife, barber, surgeon, and other strange-looking attendants; and I noticed that his wife held by the hand a fine grown child, who looked like the youngest boy belonging to the vessel. Neptune, after exchanging salutations, and remarking upon the singular kind of craft he found ours to be, made particular enquiries about new comers, and wished them to be presented, as he was anxious to know about their *health*. No sooner had he made this observation than his court physician took out of a bag three boluses, about the size of crab apples, and cast a professional eye on the three victims who were anticipating his prescription. The three new comers across Neptune's border were the engineer, an ordinary seaman, and a boy, and I am sorry to have to remark that in the court of this old sea king, like those of the land, there is a good deal of favouritism, for the engineer, who was known to have prepared a *libation*, such as nectar for the gods, was let off after the doctor had felt his pulse, and looked at his tongue. But the unhappy ordinary, upon opening his mouth, had it filled with one of the boluses, while the boy, upon seeing this, was seized with lockjaw, and so escaped with a good wrench of the nose.

Neptune, before he took leave, wished us a safe passage and his wife, who seemed very proud of their son, made a curtsy, and said the child had a little song to sing, upon which the boy, with a clear voice, now sung—

A voice is heard, when rough the waves,—
Fear not my children of the sea;
The angel of my presence saves
All those who put their trust in me.

And then they disappeared; and so the *Pioneer* passed into the Southern tropic, on which the usual drenching of all hands with salt water followed *ad libitum*.

HOMEWARD BOUND.

PART I.

(Continued from page 492.)

For some days past, familiar with the land
 Of southern Africa we h'd been, and strand
 On strand we h'd pass'd, when suddenly the light
 On the Cape's lofty ground appear'd in sight.
 How in delight, could we forbear to exclaim,
 While our eyes feasted on its welcome flame?
 Hail, glorious emblem of good will to man;
 Hail, beauteous gem of well consider'd plan;
 Hail, splendid child of nature taught by art,
 To show the dangers of the seaman's part:
 Shine on, proud luminary, may thy light
 Beam radiant ever thro' the hours of night;
 May passing seamen bless the land that gave
 Birth to thy being, ships and lives to save!

" At Lisbon's court they told their dread escape,
 " And from her raging tempests nam'd the Cape:
 " Thou southmost point, the joyful King exclaim'd,
 " 'Cape of Good Hope,' be thou for ever nam'd!"
 So sung the Luciad, and this name proclaim'd,
 Above three centuries has since remain'd:
 By Portuguese first found, by Dutch retain'd,
 By England captur'd, yielded, and regain'd,
 The Cape of Storms and shore of monster seas,
 Is hail'd by many as the land of ease:
 From India's sultry, enervating clime,
 Or, wearied pilgrim's labours maritime:
 By us 'twas sought for rest, and calm repose,
 For broken health, its sweets to interpose.

Majestic foreland, well surnamed "THE CAPE,"
 Distinguished highland of peculiar shape,
 Of height stupendous, whereon storms descend,
 Great Africa's magnificent land's end!
 Presenting oft phenomenon that's rare
 Among the frolics of capricious air

From South-east seas oft comes the reigning wind
 Of ample force with vapours well combin'd,
 Arrested these by Table Mountain high,
 Left by the gale, accumulating lie
 On its brood summit, spreading far and wide,
 And mantling o'er its undulating side,

Form mass compact, yet fragments to and fro,
 Torn by the wind are scatter'd far below!
 The blustering gale meanwhile with noises loud,
 Adds to the mass and trims the misty shroud,
 The mount envelopes, fairly caps with cloud,
 Form'd by these vapours, huddl'd in a crowd!
 Completes the work ;—the Table-cloth is spread
 For nature's own repast ! Has grace been said ?
 Alas, 'tis true ;—how prone is daring man
 To mimic nature in her wildest plan ;
 His airy castles, his sublime conceits,
 What are all these to nature's common feats
 Compar'd ? Still man must play his puny part,
 And nature's works misname as those of art.

The work's complete, commenc'd in course of morn
 Ere the sun gain'd his highest step from dawn ;
 And finish'd too, ere yet his daily course
 Is run : the misty wind, with all its force,
 Will fret the surface with a fringe of dew ;
 Fragments of vapour oft that fringe renew,
 Until the circling, yet now hidden sun,
 Well to the West his daily course has run :
 Then strong as ever, the south-eastern gale,
 Through mountain creek and cranny shrieks its wail ;
 As if lamenting vapours it has lost,
 About the surface of the mountain toss'd ;
 Gradually the Table-cloth is rent,
 By wind dispers'd and into fragments spent.

'Tis evening's quiet hour :—all is still
 On the lone summit of that stormy hill ;—
 As if in pity now bright stars look down
 With lustre brilliant, and with peace to crown
 The passing stillness of that mountain down !
 So, like the jarring interests of mankind
 The contest over, all to peace inclin'd,
 And thus the Table-cloth's constructed and resign'd.

Yet what of the Cape ? Surely here we see
 The sign of progress, both on land and sea ;
 The former people planted, and with rail,
 Distance subduing always without fail ;
 And civilizing influence t'extend,
 Assisting man to make of man his friend.
 And turn we to the sea, what have we here ?
 No graving dock, indeed, but yet a pier,
 From raging surf the harbour to defend ;
 And patent slip on which our ships to mend ;

Progress indeed will this alone extend,
 And to all nations, will assistance lend :
 Still more th' electric telegraph is here,
 Protected and encourag'd by Maclear !
 Whose labours in geodesy are known,
 Astronomy, also, claims him as her own.
 Thus fair improvement marks South Afric's land
 The march of progress on the foreign strand.

Still nature here asserts her right to reign
 Triumphant yet upon the arid plain
 Or forest cover, where the lion treads
 Tiger or hyena the jungle threads,
 Rhinoceros and elephant, besides
 The tall ostrich, with his enormous strides,
 By some one styled, and not inaptly too,
 "Ship of the Desert," one that will outdo,
 'Tis said, the swiftest racer in his speed,
 The wind when fair assisting at his need,
 To which he spreads his ample wings as sail,
 To help him on before the favouring gale.
 The same bird's eggs resist the serpent's tooth,
 Owing, 'tis stated, and no doubt in truth,
 To its thick shell, that saves it from all harm,
 When it can e'en the teeth of snake disarm !
 That arch-destroyer of the feather'd race,
 And man besides, finds here his proper place ;
 And, also, enemies in every case !
 Thus, with all these, this southern Cape of Storms,
 And snakes and lizards, a menagerie forms !

Still, let's remember, we are homeward bound,
 And soon supplies of all kinds we had found ;
 Glad to pursue our voyage round the Cape,
 For St. Helena next, our course to shape :
 Swift, with the breeze, the Cape we soon regain,
 Just as the sun retires to rest again ;
 " And, as the evening darkens, lo, how bright,
 Through the deep purple of the twilight air ;
 Beams the sudden radiance of its light,
 With strange unearthly splendour in its glare ;
 Steadfast, serene, immovable, the same,
 Year after year, through all the silent night,
 Burns, for evermore, that quenchless flame,
 Shines on that inextinguishable light :
 Its sees the ocean, to its bosom clasp
 The rocks, and sea-sand, with a kiss of peace ;
 It sees the wild winds lift it in their grasp,
 And hold it up, and shake it like a fleece ;

The sea bird wheeling round it, with the din
 Of wings, and winds, and solitary cries,
 Blinded and maddened with the light within,
 Dashes himself against the glare, and dies!
 Sail on, it says, sail on, ye stately ships,
 And with your floating bridge, the ocean span;
 Be mine to guard this light from all eclipse,
 Be yours to bring man nearer unto man!"
 'Tis thus Longfellow sweetly can combine,
 In charming verse, the light and its design.

A celebrated isle was next our home;
 To lonely St. Helena now we roam.
 St. Helena! what does that name recall?
 Tumult and war; and last not least of all,
 An island tomb, and a great Emperor's fall!
 He who of earthly Kings was once the first,
 Who, goaded by ambition's endless thirst,
 Wrested the sceptre from a lengthen'd line
 Of ancient Kings, yet only to repine,
 His grasp of empire did not combine
 The world itself! Vain hope; 'twas thus he fell,
 Spurned from the dangerous giddy height to dwell
 A suppliant exile in this island cell!
 Longwood received him, pilgrimage to which,
 Has oft been made, and merely to enrich
 An album note-book with Napoleon's name;
 A sketch, or relic small, 'twas all the same,
 While there he liv'd, or there he lay entomb'd;
 For some brief interval; as soon 'twas doom'd
 His mould'ring relics thence should be convey'd
 To Paris' Cemetery, and there be laid,
 The emblem of ambition in all human things,
 The first of a new dynasty of Kings.

Such were the sentiments we entertain'd
 Of St. Helena, as the ship maintain'd
 Her course, while yet the island lay outspread
 On th' horizon's dark blue distant bed.
 Soon rose its rocky hills, its peaks display'd
 Terrific chasms, dark, some sunny glade
 Lighting the end of some obscure ravine,
 Or again spreading stealthily between
 The lofty craggy precipices, bare
 Of vegetation's sweet engaging air!
 And yet, how inaccessible its coast!
 No shelter'd sandy bay its shore can boast;
 The Ladder here, and there the keeper's hill;
 The shore a precipice, or rocky still;

Diana's peak, perhaps, may please the eye,
 With the rude rocky scenery hard by ;
 Uniting all, to prove the isle entire,
 Is but the produce of internal fire !

Yet, St. Helena is a magazine,—
 A storehouse of provision, often seen
 By passing ships, whose people are supplied
 With all they want, and even more beside :
 The food is choice, the viands excellent,
 Also at Solomon's establishment :
 This isle, for fine potatoes too, is known ;—
 Such as may be compar'd with Ireland's own :
 Yet, of the sea around, let one beware,
 Abundant sharks are ever lurking there !
 Perhaps, by oft good feeding, they're allur'd.
 For instinct tells them it is there procur'd :
 Good index these to show where plenty reigns,
 Refuse abounds, and commerce has its gains ;
 Stories of them are common ; every day
 Some new one's told : but we must be away.

Ascension's Island calls us to her shore
 Of rude, and stern sterility, once more
 The well known seat ;—for here, the naked plain
 Of ashes, hills of cinders, still remain,
 With rocky ridges reaching far and near ;
 Wide fields of lava, intermingle here
 With dust, and arid sand : all these proclaim
 The igneous character, to which its name
 Entitles it, as being fairly thrust
 Above the ocean's surface ; and the crust
 Of all that submarine, volcanic ground,
 Which near its dismal shore is always found.
 Such is Ascension's isle, still may we claim
 Some virtue kind, to rescue its fair fame
 From that oblivion, where it was consign'd,
 When first from nature's hand it was resign'd.

Upon Ascension's Isle, there stands a hill,
 Select from more, and kindly does fulfill
 The want of springs, fresh water to supply ;—
 The only one ;—for others, not so high,
 Of stinted means, this treasure do deny.
 As Moses pierced the rock, so this the cloud
 Receives, distils the water from its shroud
 Of vapour, forming those delicious springs
 First found by Dampier ;—of all other things,

To wayworn wanderer in a sultry clime,
 The most important; and to maritime
 Tourists essential aid, and health renews.
 In those who've suffered from wild Afric's dews.
 Fresh water, thus obtained, is well applied
 To many useful purposes, beside
 Mere wants of man—the garden thus is form'd,
 With herbage fine, and flowers sweet adorn'd,
 Such as the tropic climate can supply
 Of earthly floral treasures to the eye;
 So, does the garden, other fruits produce,
 Of vegetation, wanted for man's use;
 And all this verdure flourishing, and proud,
 Under a temperate canopy of cloud:
 While the parch'd surface of the isle below,
 Abounds in cinders, lava, and in "sco!"
 Such is man's work, his blessings to extend,
 Who will but trust dame Nature as his friend;
 Who, looks from Nature up to Nature's God,
 And 'gainst her works, makes for himself a rod!

The land that hath no beauties to display,—
 No charms to look on by the light of day;
 And nothing to admire, stands in need
 Of other aid, and sable night indeed
 Ascension well may boast; for she doth lend
 Grace to conceal what no day can mend;
 And more besides, when not a cloud is seen
 To stain the purity of sky serene:
 Glowing with lustre of those brilliant orbs,
 That th' overpow'ring light of day absorbs,
 That glorious heavenly host of clust'ring stars,
 And that sweet stillness, which nothing mars,
 Except the twittering of some distant bird,
 (So distant that it scarcely can be heard);
 The sea of glass, without disturbing swell,
 Still as a mountain lake, reflecting well
 Those glorious orbs, that look upon its face,
 With charms to which the garish day gives place;
 The air itself so free from chill or dew,
 Such as befits it for eve's interview:—
 All these bear witness, that Ascension's night
 Has higher charms than has the dazzling light
 Of open day! 'Tis in such nights as these,
 When social charm combines our hearts to please
 With friendly converse, and reclin'd at ease:—
 No damp, nor cold, nor draft to interfere,
 Harmonious concord only reigning here;—
 'Tis then, beneath the canopy of stars,
 In social friendship, meet our British Tars!

Each has his own adventure to relate,
 And, some on distant home, and friends, dilate :
 Another may a tale of love impart,
 Whose magic spell yet holds his willing heart ;
 His story told in confidence apart,
 In feeling words which eloquence impart !
 Such are the scenes Ascension's nights can yield,
 In midst of cinders, and the lava field !

'Tis under cover of the "stilly" night,
 The turtle seeks the shore, and out of sight,
 Conceals her eggs, beneath the sand to wait
 The warmth of circling sun to incubate :—
 And thence the young, leaving the shell it breaks,
 Its watery element naturally takes ;
 Growth to attain, and often falls the prey
 Of feather'd foe, or man, when in his way :
 'Tis thus, when from the strand it can't retreat,
 Too far the sea, 'tis caught, its end to meet !
 The turtle's turn'd, on its broad back it lies,
 Unhappy victim, yet a lawful prize !
 As produce of the island 'tis the chief,
 And technically term'd "Ascension beef !"

Treat on Ascension, the muse then turns
 To a phenomenon, from which one learns
 Another lesson in these wondrous ways,
 Which all contribute to the Maker's praise ;—
 That great Almighty, by whose sacred will
 All things were made, his pleasure to fulfill ;
 Who made the sea, first having made the land,
 The waters of the deep were by his command
 Divided by the firmament He nam'd
 Heav'n, and all our wondrous gifts were fram'd ;—
 The atmosphere, its circulation toe,
 Then the Trade winds, their proper course pursue :
 Th' effect of these, the water is to keep
 To leeward, West side of the deep
 Atlantic, where, heap'd up, it mostly throngs
 In higher level, than to it belongs ;—
 Until those winds abate, and then such wrongs
 Of level, are adjusted, by the power
 Of gravitation, which at the hour
 Of calm, allows the waters to return,
 As nature's clear observer may discern !

To be continued.

ROYAL NATIONAL LIFEBOAT INSTITUTION.

A meeting of this institution was held on Thursday, September 6th, 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., Admiral Gordon, Sir Francis Outram, Bart., Captain De St. Croix, Admiral M'Hardy, W. H. Harton, Esq., Colonel Palmer, and Captain Ward, R.N., the inspector of lifeboats to the institution.

The minutes of the previous meeting having been read, a reward of £6 10s. was voted to the crew of the institution's lifeboat at Lytham, for assisting to a safe anchorage the French brigantine *Jeune Francoise*, which was in a very dangerous position near the Salt-house bank during a heavy gale of wind on the 4th ult.

A reward of £6 was also voted to the crew of the Fraserburgh lifeboat for putting off in reply to signals of distress, and rescuing the crew of five men of the lugger *Betsy Ann*, of Port Gordon, N.B.; which vessel had lost all her sails, and was driving towards the dangerous reef of Cairn Bulg Briggs, during a severe gale from N.N.W on the 4th ult.

It was also reported that the Blakeney lifeboat was instrumental, on the 11th ult., in bringing safely into harbour a pilot coble and her crew of three men. The boat was observed about a mile to the westward of the harbour, the crew being afraid to cross the bar in the very heavy sea running at the time. Whilst in tow of the lifeboat the coble was nearly capsized as they went in.

Rewards amounting to £17 5s. 6d. were likewise voted to defray the expenses of the Walmer and North Deal lifeboats in going out while the wind was blowing hard from the West, with the view of rescuing the crew of the ship *North*, of Liverpool, which was wrecked on the South end of the Godwin Sands, on the 30th ultimo. It appeared that the ship and the steamer towing her were both driven on the sands and wrecked. The crews were forced to take to their boats, but were fortunately rescued by passing vessels and taken to shore. The lifeboats encountered some very heavy seas while passing over the sands. The Ramsgate lifeboat also went out in tow of the harbour steam tug, with the view of rendering assistance to the crews of the same wrecked vessels.

Rewards amounting to £46 11s. 6d. were also voted to the crews of the lifeboats of the institution stationed at Selsey, New Brighton, Scarborough, and Cahore, and to those of shore boats for various services during the past month.

It was stated that the Emperor of the French had just forwarded a first class gold medal, with certificate, to the coxswain of the institution's lifeboat at St. Ives, and a first class silver medal, with certificate, to each man of the crew for their services in rescuing four of the crew of the brigantine *Providence*, of Granville, France, which was wrecked on Hayle Bar during a very heavy sea on the 28th of October last.

The institution decided on sending to the Paris Universal Exhibition

some of its best models of lifeboats and various apparatus for saving life from shipwreck.

New lifeboat stations were ordered to be formed at the entrance to Chichester Harbour (West Wittering), Stromness, N.B., and Douglas, Isle of Man, the local residents promising cordial support to the undertakings.

During the past month various liberal contributions have been received by the institution, and amongst them was the munificent sum of £343 from the Ancient Order of Foresters, contributed in sums of one penny and upwards. Legacies had been received during the past month from the executors of the late Mrs. Sarah Small, of Brighton, £76 7s. 6d.; the late Mrs. Macgregor, of Camberwell, £45; and the late John Barnard, Esq., of Walworth, £10. The late Mr. Dudley Costello had also left the institution a legacy of £450, payable after the death of his sister, for the purpose of placing an additional lifeboat on the Sussex Coast. The Rev. John Buckle had also sent the society £7 7s. 6d., being the amount realized after a lecture he had recently delivered at Ledbury on its behalf.

A grand fancy fair had been held in the Zoological Gardens, Clifton, under the auspices of the Bristol Histrionic Club, to assist in defraying the cost of a lifeboat, to be named the *Bristol and Clifton*.

The institution sanctioned standard barometers being placed at Sidmouth, Sherringham, Swansea, and Sunderland. Each barometer of the institution is made by Messrs. Negretti and Zambra, and tested at Greenwich Observatory by Mr. Glaisher, F.R.S., who is a cordial co-adjutor with the society.

During the past month the institution had sent new lifeboats to Margate, Southwold, Swansea, Llanddwyn, and Wicklow, and public demonstrations had taken place with all those boats. In every case free conveyances were readily granted to the lifeboats by the railway and steam packet companies.

The institution decided on completely renovating the Brighton lifeboat station, and on sending there the London Sunday School Lifeboat, the *Robert Raihes*.

New lifeboat houses were ordered to be erected at Looe, Courtmacsherry, Ilfracombe, Sherringham, and Cullercoats, at an expense of £1,078.

Reports were read from the inspector and the assistant inspector of lifeboats of the institution on their recent visit to lifeboat stations of the society on different parts of the coast.

A plan of a valuable life raft, invented by Mr. Edward L. Perry, of New York, was brought under the notice of the institution.

The Director-General of Stores for India had requested the committee to superintend the building by the Messrs. Forrest of two self-righting lifeboats, on the plan of the institution, for the Bombay Government.

The institution was about to send to the coast the *G. V. Brooke Lifeboat*, the cost of which had been collected amongst the friends and supporters of the late Mr. Brooke, the eminent tragedian, who perished

on the occasion of the wreck of the ill-fated screw steamer *London*. Another lifeboat was ready to be sent to Ilfracombe; it was the gift to the institution, on the 21st of June last, of Mr. Robert Broadwater, of Hornsey Rise, in conjunction with his friends, in commemoration of his fiftieth birthday.

Payments amounting to £2,215 having been made on various lifeboat establishments, the proceedings terminated.

THE CHINA SEAS.

Her Majesty's surveying steam sloop, *Swallow*, 9, Master-Commander E. Wilds, arrived at Sheerness on the morning of the 16th September from China. The next day she was taken into the large basin of the dockyard, where she was on the following morning inspected by Capt. D. M'L. Mackenzie, Captain of the *Formidable*, flagship of Vice-Admiral Sir Baldwin W. Walker, K.C.B., Commander-in-Chief at the Nore, previously to being dismantled and paid out of commission.

During the last four years the *Swallow* has been engaged in surveying various parts in the Chinese and Japanese seas. She left England in April, 1862, and arrived at Hongkong in September of the same year. On her passage from Singapore to Hongkong she experienced a heavy typhoon, in which her quarter boats were washed away, and much damage done to sails and rigging. The vessel left Hongkong for England on the 10th of March, 1866, surveyed the Scarborough reef from the 13th to the 18th of March, and called at Manilla, Singapore, and Batavia. In the Java sea two important dangers were discovered and their positions determined—viz., the Sharpshooter's Rock at the entrance to Gaspar Straits, and a ledge with 23 feet on it called the Swallow Rock. The *Swallow* passed Anjer on the 10th of May, and had a tolerably fine passage until off Point Hood, on the African coast, where for seven days a severe gale was experienced, amounting sometimes to a hurricane. Considering that three vessels, one twice as large, and another three times as large as the *Swallow*, foundered near her, those on board had cause to congratulate themselves on escaping without damage. They were besides enabled to save the lives of some of the passengers of one of the foundered ships, the *Stalwart*. The *Swallow* left Simon's Bay on the 22nd of July, called at St. Helena August 3rd and arrived at Portland on the 12th of September. During her commission she has sailed and steamed upwards of 15,000 miles. Several harbours have been surveyed, and about 3,000 miles of coast line; besides which the ship has sounded the whole of the China and Yellow Seas. The health of the officers have been very good, but on account of her bad accommodation the seamen have suffered considerably. Nearly every seaman who left England in the ship had been invalided home before she left China, but only four deaths occurred.

PIRACY IN THE CHINA SEAS.

Another severe blow has been struck at the pirates of the China Seas, by the gun-boats *Osprey* and *Opossum*. These two vessels, under Commander Menzies in the *Osprey*, Lieutenant Mainwaring having charge of the *Opossum*, left Hong-Kong on the 12th of June, having a Chinese mandarin on board and a native merchant who had been despoiled to recognise the pirate junks when they should be found. The expedition was planned by concert with the mandarins of Kowloon, and the place to which the gunboats proceeded, in accordance with the information they had received, was Quang-chow-wang, but when this place was reached the junks were found to have disappeared. In point of fact, news of the expedition had in some way leaked out, as usual, when the gunboats co-operate in any way with the mandarins. To do anything in concert with the native authorities appears useless, mere waste of time. It is not easy to suppose that they are supporting the pirates all the while, but it is impossible to avoid seeing that they are incapable of concealing from them any plan of operations which may be formed.

If the gunboats had on the present occasion limited their performances to the original programme, they would have come back without having seen a pirate. As it was, however, being so far down the coast, it was decided to go on to Hainan, to draw a few covers in that direction. A very tempting account do the officers of the gunboats give of the island generally, the scenery of which is rich and tropically luxuriant, with cocoa nut trees growing to the water's edge, and hills covered with vegetation. At a village called Yu-lin-kan, on Wednesday the 20th of June, a fisherman came off and gave information that in the next bay, Sa-ma-creek, there was a fleet of twelve piratical junks, just what was wanted. The gunboats immediately went in search, and in a small inlet discovered their prey. There were not twelve but twenty-two junks, and the pirates must have belonged to a bolder race than those who frequent this neighbourhood, for they showed fight, and no sooner saw the gunboats than they prepared for action, and opened fire with their guns, although at the same time they combined discretion with their valour, and set to work passing their valuables and portable cargo on shore as fast as this could be done.

They were very large junks, with an average of more than ten guns each. One mounted fifteen, and the pieces ranged in sizes from nines to thirty-twos. Altogether it was computed that the fleet carried 240 guns, a tolerable match for two boats with six guns between them. On this occasion, however, our vessels did not remain at a distance, firing with the largest ordnance only, while out of the pirates' range, but they advanced as near as the shoaling water in the creek would allow, the *Osprey* to within 1200 yards, and the *Opossum* to within 700, at which latter distance, of course, she was well within the range of the Chinese. Indeed, the great majority of their balls passed over

her, though some struck her hull. Fortunately no casualties occurred.

This cannonading went on for about two hours when a new turn was given to the course of events by means of a landing party from the gunboats. About forty-five men were quietly put on shore, and, under cover of the jungle, made their way round to the part of the creek at which the pirate vessels were lying, without being observed until they came close to the junks. From those lying close along shore the pirates immediately fled, sculling in their sampans or swimming ashore to the opposite side of the creek, and gradually, as the landing party took possession of the junks along shore, and by means of boats began to board these which were anchored out in the creek, the pirates gave up, and even from the vessels lying furthest out, the crews slipped over the sides and disappeared with or without the assistance of sampans.

The *Opossum's* and *Osprey's* boats made a good many prisoners while this was going on, but most of them were wounded, and it was afterwards found better to turn them adrift rather than bring them away in a state which would have required medical treatment. During this time, while the boats were pulling about, the mandarin who was with the gunboats made himself conspicuous by his zeal in the pursuit and capture of prisoners, but his boldness drew upon him a great deal of attention from the pirates, and they fired at him so perseveringly with small arms as they were escaping, that he was at last struck in three places. One of the wounds was in the stomach, and this proved mortal, so that poor old Ly-ang—blue-button mandarin of Kowloon—ended his career in this engagement, falling the only victim to the pirates. One man on board the *Osprey* was wounded, but none were killed.

The pirate junks were all burnt, in spite of the fact that some of them contained opium and other valuable cargo. It is of course impossible for the gunboats, short handed as they are, to make prizes except on a small scale, every now and then under favourable circumstances. On Thursday their crews destroyed the piratical village of Sa-ma, and then after spending the rest of the day, and part of Friday, "wooding and watering," the two little vessels started on Friday night on their return voyage. They came straight across out of land, and reached Hong-Kong on Monday morning.—*Hong Kong Gazette*.

The author of a work just published, entitled "Ti-ping," gives the following thrilling account of an escape which he had in this same harbour of Hong Kong going off to his craft.

"While still a considerable way from his own vessel, which happened to be lying outside all the others in port, he was suddenly struck with some heavy weapon by the man behind him, who was steering. Through a forward movement which he made, the blow luckily missed his head and struck him on the shoulder. Mellen very fortunately had a small revolver with him, and at the moment when the rest of

the boatmen started from their seats and rushed to attack him, he turned and shot his first assailant, had just time to face them, firing again and wounding the foremost, when they were upon him, armed with formidable knives and the heavy thole-pins used to fasten the oars. In an instant he received several wounds, though providentially his assailants were too much in one another's way to use their murderous weapons effectively; but his revolver being self-acting, without a pause he was enabled to shoot dead another, and severely wound a fourth. At this, seeing four of their number *hors de combat* almost within five seconds, two of the remaining robbers lost heart, and jumped overboard to swim for it; the last, a large powerful fellow, closed with Mellen in a fierce and deadly struggle. My friend's revolver was empty; so, abandoning the weapon that had already rendered such good service, he grappled with his adversary, endeavouring to wrest away the knife with which he was armed. In the meanwhile, the reports of the pistol and the noise of the struggle had reached the wakeful ears of my friend's wife, who was by good chance on deck, waiting and watching for her husband's return. Piercing the darkness of the night with eager eyes, she faintly discerned a boat in the distance, outside all the other ships, and naturally concluded it must be bound for their vessel. In agony for her husband's safety, she aroused the crew, seized a pistol from the cabin, and set off in the gig to overhaul the boat which had attracted her attention. The gig's crew pulling fast, arrived at the scene of conflict not an instant too soon; for Mellen, being in weak health, was succumbing to the superior strength of his antagonist, who, with one hand grasping him by the throat, was making fierce efforts to release the other, and plunge the dagger it held into my friend's breast. Just at this critical moment, Mrs. Mellen and her boat's crew arrived alongside, and, seeing all the danger, she presented the pistol at the Chinaman and fired; the ball passed directly through his head and laid him lifeless at her husband's feet. This gallant act was but one of many instances in which that courageous woman had saved her husband's life, and in defending which she eventually lost her own—a fruitless though noble sacrifice."

Here is the character of the Ti-pings, in contradistinction to the Manchus who have so long held them in subjection.

"One of the most remarkable contrasts between the Ti-pings and their enslaved countrymen, the Imperialists, and the first to attract the observation of foreigners, is their complete difference of appearance and costume. The Chinese are known as a comparatively stupid-looking, badly dressed race; the disfigurement of the shaven head not a little causing this. One presents a type of the whole—a dull, apathetic countenance, without expression or intelligence, except what resembles the half-cunning, half-fearful manner of slaves; their energies seem bound, their hopes and spirits crushed by wrong and oppression.

"The Ti-pings on the other hand, immediately impress an observer by their intelligence, continual inquisitiveness, and thirst for knowledge. It is, indeed, utterly impossible, judging from their different

intellectual capacities, to come to the conclusion that they are both natives of the same country—a difference more marked cannot be conceived. The Ti-pings are a clever, candid, and martial people, rendered peculiarly attractive by the indescribable air of freedom which they possess. Where you would see the servile Tartar-subdued Chinamen continually cringing, the Ti-pings exhibit, even in the face of death, nothing but the erect, stately carriage of free men. It is a singular fact that the handsomest men and women in China are to be seen in the Ti-ping array. This may possibly be partly the result of their difference of dress and of wearing the hair, but the main cause is undoubtedly the ennobling effect of their religion and freedom. The dress consists of very broad petticoat trousers, mostly of black silk, bound round the waist with a long sash, which also contains their sword and pistols; a short jacket, generally red, reaching just to the waist and fitting tight to the body, forms their upper garment.

“But it is the style in which they wear their hair that forms their principal ornament: they allow it to grow without cutting; it is then plaited into a queue at the back of the head, into which is worked a tail of red silk cord; and it is always worn wound round the head in the form of a turban, the end, a large tassel, hanging down on the left shoulder. Their shoes are of varied colour, with flowers and embroidery worked all over them (the hoots of Imperialists are quite different, being not only slightly of another shape, but always plain). During my subsequent intercourse with the Ti-pings I found the above costume the summer one of the soldiers: the body-guards of the different chiefs wear their own particular colours, the edges of the jacket being always embroidered and braided with a different one, forming a regular uniform. In the cold weather they mostly wear fur jackets, or other warm garments. The colours of their clothing vary much, in some cases the jacket being black silk and the trousers white, and in others blue, black, white, red, or yellow, according to their different corps. Yellow is the colour of only the highest chiefs, or of their king. The chiefs all wear long outside dresses, reaching to nearly the feet, of either blue, red, or yellow silk, according to their rank. On the head they wear a silk scarf or hood, with a jewel fastened to the front as the badge of their position. In hot weather one and all wear large straw hats, very prettily embroidered, the crown quite small, and the brim about a foot broad, which gives them a very gay and singular appearance. The great chiefs who are titled Wang (generalissimos, or governors of districts), have a much more costly and elaborate dress. Upon all occasions of importance they wear their state robes and coronets, and the appearance they present when so arrayed is really magnificent.

“Being almost invariably men of a very energetic and expressive mien, when attired in their long robes, covered with ancient Chinese designs, fabulous animals, or fancy patterns, all worked in gold, silver, and jewels, with their jewelled coronets, and with their gold-embroidered shoes, it would be utterly impossible to imagine a more splendid or effective costume. Many of the Ti-pings come from the

province of Honan, and the Chinese say that the natives of that part are the handsomest in China. The truth of this I fully believe, for having made it a particular point of inquiry to ascertain the native place of every Ti-ping I have met of more than ordinary appearance, I have invariably found the best featured were either Honan men or came from the hilly parts of Kiang-si province. Honan forms a central portion of China, and has long been remarkable for producing some of the best soldiers; but it is especially its *braves*, who man great numbers of the mandarin gunboats which are used all through the inland waters, that are celebrated for their courage. The Honan people are easily distinguished by the lightness of their complexion; the shape of their nose, which is high and well-formed, like the European; the largeness, and little approximation to the oblique, of their eyes; and their superior stature. In a few cases I have met men not inferior to any race in the world for beauty, while it would be difficult to imagine a more picturesque bearing than they present with their dark massive hair wound around their heads by scarlet silken fillets, so as to form a shade for their expressive eyes and animated countenances. Some of these youthful Honan Ti-pings are as well-featured and handsome as an Andalusian beauty, their black eyes and long lashes, olive complexion, and beardless faces rendering their semblance more striking."

The following is a good account of those hair-breadth escapes so common in adventures among these Chinese pirates:—

"When the mandarin rolled on the beach, several of his officers seized him and dragged him up the bank, regardless of the struggles he made to return and attack me. Fortunately A-ling arrived upon the scene at this moment, and going to the mandarin, told him that he would go on board and bring the money required. While the leader of the robbers was being brought to his fort, A-ling was taken on board our vessel, after receiving my assent, to procure the dollars from P——. Meanwhile the soldiers remained in the same position around myself, while I endeavoured to show them my indifference by producing a cigar and lighting it. After A-ling had paid the money into the coffers of the banditti, he came to me with two inferior officers, and, getting the soldiers to fall back, induced me to descend from my position of vantage, believing that all danger was over. Although at first they seemed quiet enough and retired from the boat, I had no sooner reached some little distance from it than they crowded round me. Suddenly, and before I could use my revolver, I was seized from behind by many hands, and while every incident of my life rushed with supernatural rapidity and minuteness of detail through my mind, I was forced upon my knees, when one of the soldiers raised a long and heavy sword to behead me. The steel flashed as it was raised above me, and, commending myself to God, I shivered while for a fearful moment awaiting the blow. Again, however, I was saved from the very jaws of death. My would-be executioner was thrust aside, and I believe that I fainted for a second or two.

"I then found myself surrounded by a strange mandarin and his at-

tendants, A-ling, my cook, and a few of the more kindly disposed among the robber band. A-ling informed me that the stranger was a 'civil' mandarin, who had just arrived from a neighbouring city; that he had happened to notice my gold band, and had opportunely rushed forward and rescued me. Thus for the first time the uniform had done me good. At first, after expressing my gratitude, I felt perfectly safe under the protection of the fresh arrival, for I knew that the rank and authority of a civil mandarin was far superior to that of a military one, like the commandant of the Mud Fort. However, upon the people around me moving a little away, I saw two soldiers on the ground, two dead, and one severely wounded; for it appeared that P—, upon observing my seizure, had opened fire on the crowd. It was now evening, and the dusk was fast approaching, and it was evident that not a moment should be lost in getting away from the place. Two men had been killed, and their chief would undoubtedly, endeavour to avenge their death.

"After giving the watch I wore as a memento to the mandarin who had so kindly saved me, and being supplied with a boat by him, I at last got safely on board with A-ling and the cook. My friend P— had barely griped me by the hand and congratulated me upon my escape, when we were startled by the blowing of the war-horns on shore, and the clang of gongs. While we were hard at work getting our vessel under weigh, the soldiers came rushing down to the beach again, waving their flags and arms about, planting their gingalls, and swearing vengeance for the death of their comrades. In a few minutes they opened a heavy fire among us, while a number of them ran along the bank in the direction of the creek where their gunboats were moored. The wind had fallen comparatively light, and we would not have been able to escape from the smaller vessels of the enemy, when, to our great joy, a steamer rounded the bend of the river below, and came into full view. At this moment the gunboats were just shoving off from the shore, but directly they observed the steamship only a few miles distant, they pulled up the creek again, while the men along the beach ceased firing and ran into the fort, doubtless believing that the approaching vessel was the man-of-war I had told them about. When the steamer had arrived pretty near, I signalized her, and saw that she was one of the American river boats. To my horror, when close alongside she hoisted the Imperialist flag, and I then knew her to be the *Williamette*, a vessel belonging to the Manchoo Government. When right abeam she stopped, and sent a boat to my vessel. Fortunately she was manned with an American crew, and in consideration of the sum of 300 dollars, her captain, whose name, singularly enough, happened to be Friend, Imperialist though he was, agreed to tow my vessel up to the Nankin forts. Before dark, we had the satisfaction to bid adieu to the Mud Fort, as we ploughed up the fast-rolling yellow waters astern of the *Williamette*. To our sorrow, however, we were just able to discern on the beach the execution of our *lowder*, who was dragged down and decapitated there before our eyes, while we were powerless to save the poor fellow."

Nautical Notices.

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

PARTICULARS OF LIGHTS RECENTLY ESTABLISHED.

(Continued from page 499.)

All bearings are magnetic.

Name.	Place.	Position.	F. or R.	Ht. in Feet.	Dist. in Mls.	(Remarks, &c. Bearings Magnetic.)
45. Valencia	Spain, S.E. coast	East Mole	F.	28	9	Est. 1st October, 1866. Red
Port St. Remo	Italy, South coast	43° 48' N. 7° 48' E.	F.	29	8	Est. 1st August, 1866. On the Moles. The lower Green.
46. Port Gijon	Spain, North coast	43° 52' N. 5° 40' W.	F.	29	7	Est. 1st October, 1866. Red light.
47. Cartagena	Spain, South coast	37° 55' N. 0° 56' W.	F.	300	10	Est. 24th September, 1866. Light removed from Point Podadera to Point Navidad.
48. Atlantic Cable Caution	.....	.....	..	..	..	(a.)
49. Fruholm Islet	Norway	71° 57' N. 29° 59' E.	F.	148	30	Est. 25 h August, 1866.
50. Buoys	.....	.....	..	..	..	(b.)
51. Cape St. George	United States	Gulf of Mexico	..	..	..	Reest 1st August, 1866.
Cape San Blas	Ditto	West Florida	Fl.	..	16	Reest. 23rd July, 1866. Interval of flashes one minute and a half.
Jupiter Inlet	Ditto	East Florida	Fl.	..	..	Reest. 28th June, 1866. Interval between flashes half a minute.
Quoddy Head	.....	.....	..	..	..	(c.)
52. Uto Island	.....	.....	..	..	..	On 29th May last temporarily discontinued.
Sommars Island	Gulf of Finland	.....	..	..	..	Undergoing alterations.
53. Cartagena	.....	.....	..	..	..	Light will be placed in a new tower on Point Podadera. <i>Cancelled.</i>
See 47	.....	.....	..	..	..	(d.)
54. Rutnagherry	Hindoetan, West Africa	16° 59' N. 78° 15' E.	F.	300	18	Est. 1st January, 1867. Red light.
55. Fernando Po	.....	Fernando Point	F.	..	5	
56. Cape St. Maria de Leuca	Italy, S.E. coast	39° 47' N. 18° 23' E.	Fl.	335	27	Est. 6th September, 1866.

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

(a.) 48.—*Caution to avoid Anchoring near Atlantic Telegraph Cable at Newfoundland.*—The shore end of the Atlantic Telegraph Cable passes 160 yards west of Norther point, on the east side of the entrance to Heart's Content harbour, Trinity bay; and from thence, two beacons—situated over the southern cove of the harbour—will be seen in line S.b.W.; these beacons mark the direction of the cable's first course into the harbour.

When the white beacon on the eastern shore is in line with the School house, the cable commences to curve to the eastward, and continues to do so until the Church tower is in line with the northern pier, on the shore under the Church; on this line the Atlantic Cable approaches the shore within a cable's length, and thence to the land under the Telegraph Office.

Vessels intending to anchor, should carefully avoid the line indicated above, by anchoring either east of the line of the Southern beacons, and north of the line where the East beacon bears S.E.½ E., appearing midway between the

School house and the house next south of it; or by anchoring South of the line where the Telegraph station flag bears S.E.b.E., on with a whitewashed stone on the shore, as on this latter line it is intended to place a second Telegraph Cable.

(b.) 50.—A red pyramidal-shaped buoy has been placed in $5\frac{1}{2}$ fathoms at low water, off the outer end of the reef which extends off Cape Elizabeth nearly a mile, in a N.E.b.E. direction in Spencer's Gulf. The buoy lies 4 cables westward of the shoalest part of the reef, and should be seen from a distance of 4 miles.

The bearings from the buoy are,—Cape Elizabeth E.N.E., and Tipara light-vessel N.N.W. $\frac{1}{4}$ W.

A large red pyramidal-shaped buoy, surmounted by a ball, has also been placed on the South-west extremity of the Long Spit, which extends for about 20 miles in a north-westerly direction from Port Gawler flats, north of the channel, into Port Adelaide, in 19 feet at low water spring tides, with the summit of the Hummock range of hills at the head of the Gulf N.b.W., and Mount Lofty E. 38° S.

A large red pyramidal-shaped buoy, with a triangular head, has also been moored in 17 feet at low water, on the outer extremity of Bald Hill Spit, lying in a westerly direction from Sandy Point, at the entrance of Port Wakefield.

(c.) 51.—Also, that on and after the 15th day of August, the fog signal at west Quoddy head, coast of Maine, would be made by means of a Daboll trumpet, operated by a Roper hot-air engine, giving blasts of 5 seconds duration, with intervals of 20 seconds between the blasts.

The trumpet is placed in a small white building, a short distance south of the lighthouse, at an elevation of 75 feet above the mean level of the sea.

(d.) 54.—*Directions.*—At the Port of Rutnagherry there are three anchoring grounds, viz. :—an outer anchorage for sailing vessels, and an outer and inner anchorage for steamers; the latter only during the fair season.

Vessels in the outer roadstead should be in 8 fathoms, with the lighthouse bearing N.E.b.E. $\frac{1}{2}$ E., the Adawlut (a large white building, on the hill north of the creek) E. $\frac{1}{2}$ N., and the White tomb (near the beach, south of the creek) E.b.S. $\frac{1}{2}$ S.

Steam vessels making the port at the beginning, or close of the S.W. Monsoon, should anchor in $6\frac{1}{2}$ fathoms, with the lighthouse North, and Adawlut E.N.E.

The inner anchorage is only available for steamers during the fair season, when vessels should anchor in not less than 4 fathoms, with the lighthouse N.W. $\frac{1}{4}$ N., and Adawlut E.b.N. $\frac{1}{4}$ N.

The Port of Rutnagherry affords no shelter to vessels in the S.W. Monsoon; but one in distress would in some measure be protected by anchoring in 5 fathoms, after rounding the North point of Méria Donghur, a hill three miles to the northward of the lighthouse. Méria Donghur bay, immediately north of Rutnagherry, affords no shelter, being exposed to the full force of the Monsoon.

HYDROGRAPHY OF THE CHINA SEA.

The following information respecting the examination—during 1865—of several shoal banks and dangers in the China sea, has been received from Mr. Tizard, Master R.N., H.M. Surveying Vessel *Rifleman*.

North Danger Reef, of coral formation, is about $8\frac{1}{2}$ miles long, in a

north-easterly and south-westerly direction, and $4\frac{1}{2}$ miles broad. On the north-west side of the reef are two sandy cays, the north-eastern-most of which is half a mile in length, and one quarter of a mile in breadth, with an elevation of 10 feet above the level of the sea at high water; the south-western cay is only 4 cables long and $1\frac{1}{2}$ cables broad, but its elevation is 15 feet above the high-water level.

Between these cays is a passage one mile broad—with from 4 to 9 fathoms—leading into the lagoon of the reef, where the depth of water is from 20 to 25 fathoms.

Shoal water exists all round the edge of the North Danger reef, and there are heavy breakers over the coral, awash at its north-east and south-west extremities. No soundings could be obtained close to the edge of the reef with upwards of 100 fathoms of line, but one cast of 380 fathoms was procured $1\frac{1}{2}$ miles north-east of the breakers on its north-eastern extremity. On the eastern side of the reef no bottom could be obtained with 480 fathoms of line.

Both cays are covered with coarse grass, and on the north-eastern-most of the two is a stunted tree in lat. $11^{\circ} 28' N.$, long. $114^{\circ} 20' 45''$ East of Greenwich. The cays are frequented by Chinese fishermen from Hainan, who collect Beche-de-mer, turtle-shell, &c., and supply themselves with water from a well in the centre of the north-eastern cay.

Bombay Castle, Orleans, Johnson, and Kingston Shoals were found to be patches on the edge of a large coral bank, which has been named the Rifleman bank.

Rifleman Bank lies between the parallels of $7^{\circ} 31' N.$ and $7^{\circ} 57' N.$, and extends from longitude $111^{\circ} 32' E.$ to $111^{\circ} 45' 30''$ East of Greenwich.

Around the edge of the bank several shoal patches were found, one of which, half a mile in extent, in lat. $7^{\circ} 55' 20'' N.$, long. $111^{\circ} 42' E.$, has only 11 feet water; with this exception, 4 fathoms was the least depth obtained on the bank.

It is deemed probable that the 11-foot patch is the shoal observed by Captain Cameron of the *Orleans*, who obtained a cast of 8 feet, and placed the danger in lat. $7^{\circ} 56' N.$, long. $111^{\circ} 38' E.$ The 8-foot knoll was not found by the *Rifleman's* boats, but it is quite possible to have escaped the lead, for large isolated rocks are known to exist on coral reefs, though extremely difficult to find.

Heavy breakers mark the position of this patch, in any but the finest weather.

In the centre of Rifleman bank, the soundings are from 20 to 40 fathoms, sand and coral; and around its edge, outside, a few deep casts were obtained, varying from 300 to 600 fathoms.

The *Rifleman* sounded over the position assigned to the *Bombay Castle* reef, in lat $7^{\circ} 56' N.$, long. $111^{\circ} 51' E.$, but no bottom was obtained with upwards of 100 fathoms of line, nor could any sign of shoal water be seen from the mast-head under most favourable circumstances, when on and cruising around its supposed position; it is therefore deemed probable that the *Bombay Castle* must have sighted the

11-foot patch on the Rifleman bank, as the latitude is nearly the same, though the longitude differs 9 miles.

Prince Consort Bank, situated between the Vanguard and Prince of Wales' banks, was discovered whilst carrying a line of soundings between the North Danger and Singapore.

The bank extends from lat. $7^{\circ} 46' N.$ to lat. $7^{\circ} 58' N.$, and between the longitudes of $109^{\circ} 55' E.$ and $110^{\circ} 6' E.$ No danger exists on it; the general soundings are from 30 to 50 fathoms, sand and coral, the least water found being on a small coral patch of 10 fathoms.

Central London Reef.—This important danger was discovered whilst sounding between the East and West London reefs. It is a coral patch awash, half a mile in extent, with a shallow lagoon inside the belt of coral; on the south-western extremity of the reef, is a sandy cay 60 or 70 yards in circumference, which is probably covered at high water springs.

The centre of this danger is in lat. $8^{\circ} 55' 30'' N.$, long. $112^{\circ} 20' E.$; it is in every respect a most dangerous reef, and lies directly in the track of vessels working up or down the China sea.

Being small, it is not marked by great masses of breakers, like those which so readily point out the positions of East and West London reefs, for one of which it has probably been mistaken, when sighted, as it has doubtless been.

Caution.—Like all other dangers in the China sea, visited by the *Rifleman*, this reef is surrounded by deep water, thus rendering the lead useless; it is therefore essentially necessary to observe the greatest precaution when in their vicinity, and never to stand towards them with the sun shining ahead, as under these circumstances it becomes almost impossible to distinguish shoal water or breakers.

Quarteron Reef, named after the Spaniard who discovered it, is awash, and shaped like a crescent, whose chord is 3 miles in length E. by S., and W. by N., with the curve to the southward. Its eastern extremity is in lat. $8^{\circ} 50' 54'' N.$, long. $112^{\circ} 49' 34'' E.$

This reef was found to be steeper than any yet visited, for although deep water is found close to all, there was generally some slope from the rocks awash, on which the vessel could anchor for a short period, to enable the position to be fixed; here, however, although the *Rifleman* anchored in 5 fathoms, with the jib-boom over the rocks awash, the reef was so steep as to cause the anchor to roll down the incline, and run the cable out to the clinch.

East London Reef is 7 miles in length East and West, the breadth varying from 1 to 2 miles. Its East end is in lat. $8^{\circ} 49' 38'' N.$, long. $112^{\circ} 37' 26'' E.$

The coral bordering the reef encloses a lagoon having from 4 to 8 fathoms water; no entrance into the lagoon was discovered, but there was an appearance of numerous coral patches inside.

The sea breaks heavily on this reef, and on its western extremity are one or two rocks which seldom cover. No soundings could be obtained with 100 fathoms of line at the distance of a mile from where

the coral dries, and the attempt was equally unsuccessful with 500 fathoms of line, at the distance of 2 miles from the reef in a northerly direction.

Gillies Shoal.—The position of this shoal which was ineffectually searched for in 1864, was again sounded in 1865, but no trace of shoal water was observed; the depth when on its supposed position was 800 fathoms.

Ruby Shoal.—The supposed position of this shoal was also ineffectually sounded over in 1864 and 1865; nothing was seen on either occasion which could lead to the supposition of there being any danger in the vicinity.

Currents.—During the time the *Rifleman* was at anchor amongst the reefs, careful observations were taken of the set of the currents; the result agreed with that obtained in 1864, viz., that during 16 out of the 24 hours the current invariably set to windward, generally with the greatest force when the Monsoon was strongest.

The examination of the various positions ascribed to the St. Esprit shoal was made in May 1866, by Mr. John W. Reed, Master Commanding H.M.S. *Rifleman*, in the tender *Dove*. The following is the result:—

St. Esprit Shoal is a coral bank $2\frac{1}{2}$ miles in length, East and West, and $1\frac{1}{2}$ miles in breadth; the centre of the shoal is in lat. $19^{\circ} 33' N.$, long. $113^{\circ} 2' E.$ The general depths upon it are 9 fathoms, the least water obtained being 7 fathoms, with 60 to 80 fathoms close to. The *Dove* remained at anchor upon the shoal for two days, on both of which good observations were obtained for determining its position.

Captain Ross, of the *Discovery*, who passed over the shoal in 1813, placed it about 5 miles to the south-eastward, and Monsieur D'Apres 19 miles to the westward of the above position. D'Apres' position was well sounded over, and regular depths of 95 to 105 fathoms obtained. The *Assevedo's* account placed the shoal in lat. $19^{\circ} 6' N.$, long. $113^{\circ} 4' E.$, and this position was also sounded over, but no bottom could be obtained with 200 fathoms of line.

The *Dove* also sounded over the position of the discoloured water seen from the *Althea* in 1806, lat. $19^{\circ} 36' N.$, long. $112^{\circ} 17' E.$, but regular depths from 65 to 70 fathoms were found in that locality.

The St. Esprit Shoal is described in Horsburgh's Directory (Vol. 2, p. 244) as being "6 leagues in diameter, with 9 to 15 fathoms on its southern part, and on the northern parts there are rocks even with the water's edge;" but no such dangerous shoal exists near any of the above localities, all of which were sounded over under circumstances extremely favourable for observing the sea topping or breaking over dangerous patches, had any such existed.

Helen Shoal is a small patch $1\frac{1}{2}$ miles in length, E.N.E. and W.S.W., and a mile wide; its centre is in lat. $19^{\circ} 12' N.$, long. $113^{\circ} 53' 39'' E.$ The least water upon it is $6\frac{1}{2}$ fathoms, the general

depths being 8 and 9 fathoms; around it no bottom could be obtained with 100 fathoms of line.

Currents.—The strong rippings on the St. Esprit shoal, mentioned by Ross, were not observed by the officers of the *Dove*, during the two days she was anchored on the shoal. Strong rippings were, however, seen during the search over the various positions ascribed to the shoal, but on examination they appeared to be mere current rippings, the water being as deep there as elsewhere. The current was found to set generally to leeward.

AUSTRALIAN HYDROGRAPHY.

Gulf St. Vincent—Port Wakefield.

The following sailing directions and information are published for the guidance of commanders of ships visiting Port Wakefield:—

Buoy on the Long Spit.—From the Lightship off the Port Adelaide outer bar, steer N.W. $\frac{1}{4}$ W., making allowance for the tide and leeway according to circumstances. Keep this course for twenty-two miles, to sight a large red buoy with a pyramidal top, surmounted by a ball. This buoy marks the S.W. extremity of the Long Spit, extending to the westward from the low sandy shore to the northward, and in the vicinity of the Gawler River.

Long Spit.—The extensive shoal extends for twenty miles in a north-westerly direction from the Port Gawler Flats, lying to the northward of the channel into Port Adelaide.

Position of Buoy.—The buoy at the S.W. and W. extremity of the shoal is placed in nineteen feet at low water spring tides, in lat. $34^{\circ} 32' S.$, long. $138^{\circ} 10' 15''$, with the south summit of the Hummock Range of hills at the head of the Gulf bearing N. $11^{\circ} W.$ and Mount Lofty S. $38^{\circ} E.$ With these bearings commanders of vessels will be able to place the position of the buoy on their own charts.

Coast Line.—The coast-line on the east side is distant from the buoy about six miles, the low scrub inside the sandy beach being just visible from the deck of a small vessel; but this offers no guide, as, during the summer, and at times in winter, the coast-line is much affected by refraction.

From the buoy to the westward the water deepens rapidly to six fathoms, until a depth of ten fathoms is attained in the middle of the Gulf.

The water inside the buoy—or from E.S.E. to N.N.E. round by E—shoals somewhat rapidly to two and a half fathoms; but very quickly after that depth is attained.

Caution in Thick Weather.—In thick weather, or in the middle of a summer day, when the sun is ahead, and objects much affected by refraction, the lead should be carefully attended to when steering to make the buoy.

Caution.—By maintaining a depth of five fathoms, the edge of the Long Spit may be avoided and the buoy sighted.

Buoy on the Bald Hill Spit.—Having brought the buoy to bear N.E., distant two miles, steer N.W. by N. $\frac{1}{2}$ N. for twelve and a half miles, until the south summit of the Hummocks is seen bearing N., when alter the course to N. for four miles, until the land at the head of the Gulf is raised above the horizon, and a bald hill on the east side, inside Sandy Point, distinguished; then alter the course to N.N.E., keeping in not less than four and a half fathoms, until a large red buoy, with a pyramidal top and triangular head is observed. Steer then to keep the buoy to the eastward at a distance of two cables' length, then alter the course to N.

Position of Buoy.—This buoy is placed on the outer extremity of the shoal spit stretching out to the westward of Sandy Point, or what is termed the "Bald Hill Spit." The buoy is placed in seventeen feet at low water, and it offers an excellent guide for entering the anchorage of Port Wakefield.

Caution.—Before getting up to the buoy, sail should be taken in, and the ship got ready for anchoring.

Position for Anchoring.—Having brought the largest store in the Township of Port Wakefield to bear N.N.E. $\frac{1}{2}$ E., or the buoy S.E. $\frac{1}{2}$ E., and the mangrove bushes on Sandy Point to between E.S.E. and S.E. by E. $\frac{1}{2}$ E., anchor in four fathoms at low water. There will be room to swing in this berth, but not space to beat out of it without going into eighteen feet at low water.

Beating up the Gulf.—In making a passage from the Lightship to Port Wakefield against head winds, make the first board to the westward, and stand on that tack (say west) for about sixteen miles, taking care not to come under eight fathoms, so as to avoid the shoal water on the Orontes Bank; then, going about, endeavour to work between the two shoals, viz., the Orontes Bank and the Long Spit; but in drawing to the northward, do not fail to sight the buoy on the latter danger, as it forms an excellent guide for enabling a commander of a ship to know when he is to the northward of the Orontes Bank.

Western Coast may be Approached.—Being off the buoy, and, consequently, to the northward of the Orontes Bank, the western coast may be safely approached, making long boards from five fathoms outside the Long Spit, on the east side, to within a mile of the western shore.

On nearing Sandy Point, the red buoy off the Bald Hill Spit should be passed as previously directed, when short tacks must be made, taking care not to bring the buoy to bear to the southward of S.b.E., and not standing to the westward into less than three and a half fathoms, anchoring in the space before indicated.

Small Vessels.—Position for Anchoring.—Small vessels may stand towards the landing-place, observing that the water shoals very rapidly from three fathoms in some places; but even should a vessel touch the ground no injury will arise, as the bottom is generally composed of sand and mud, and there is no sea. Care, however, must be taken to keep a ship in such a position as to be clear of her anchor.

Land Wind.—In leaving Port Wakefield, it is advisable not to start until the morning, when, the wind generally being easterly, an offing may be easily obtained without beating out.

Tides.—The tides at the head of the Gulf are very irregular, and much affected by prevailing winds.

With strong westerly winds the rise of tide is much augmented, whilst the fall is much diminished.

Thistle Rock, about seven and a half miles to the southward of Bald Hill, and about two miles from the sandy beach, lies in latitude $31^{\circ} 22' 05''$ S., long. $138^{\circ} 13' 15''$ East, with the following bearings: Mount Lofty, S. 40° E.; S, Summit Hummocks, N. 20° W.

The rock, which is of limestone, and very small, is a wash at low spring tides, and lies in the track of small vessels beating down the Gulf.

A large mud buoy, painted red, now marks the position of the rock. This buoy should, like all other red buoys, be kept on the star-board hand bound to the north, or inwards, and on the port hand when bound to the south, or outwards.

The rock may be easily avoided by keeping in three fathoms at low water, and in four and a half at high water; the rise and fall being nine feet.

Some of the small coasters report other small rocks in the vicinity of Thistle Rock, but they have not yet been found by this department.

Winds.—It often occurs during westerly winds, at neaps, that a higher tide will be experienced than at the springs, with fine weather, and south or south-east winds.

With the latter, the tides are at the lowest, and the rise at springs is much reduced.

In fine weather, with the ordinary land and sea breezes, the time of high water at F. and C. is five hours, and the rise about nine feet.

At neaps, in fine weather, the rise and fall is almost imperceptible, the time of apparent high water being very irregular.

The winds, during fine weather in the summer are generally as follow: From sunrise to about 8 a.m. from E. to E.S.E.; in hot weather, the wind in the morning may be from N.E., gradually falling calm towards eight o'clock a.m. The sea breeze generally sets in after an interval of a couple of hours light winds, or calm, at about eleven, and freshens towards five o'clock, gradually moderating till sunset, when it come round to the S.E., and dies away towards night.

The barometer falls rapidly with northerly winds both in the summer and winter seasons, and generally precedes a change of weather from the westward. In summer the change often occurs suddenly from the southward, when it blows hard. In the winter, the strongest winds are from the westward.

Produce is now sent from Port Wakefield to the shipping in the roadstead by barges. The river entrance is very shallow, and has a flat of upwards of a mile in extent, uncovered at low water springs.

At a rise of six or seven feet above the low water spring level, the loaded barges can cross the bar.

The question of either deepening the entrance of the river, or building a jetty across the flat, is now under the consideration of the Government.

The supply of fresh water at Port Wakefield is limited, and difficult to procure; it is therefore recommended that a sufficient stock should be obtained at Port Adelaide, if the ships call there on their way up the Gulf; or water can be obtained by arranging for the barges used at Port Wakefield—but which generally belong to persons at Port Adelaide—bringing up a supply.

NOTES ABOUT NOVELTIES.

Very seldom indeed have we met with a transaction of this kind that has given us more satisfaction than the following; one that is not only honourable to the officers of the French frigate *L'Astrée*, as gentlemen, but highly creditable also to all concerned, as fellow Christians of the sufferers:—

The *Moniteur* states that the officers and the crew of the French frigate *L'Astrée*, to whom a sum of £500 had been presented by the British Admiralty, in acknowledgement of their valuable assistance when her Majesty's ship *Bombay* was burnt at sea, have requested that the whole amount shall be placed in their name to the account of the general subscription raised in England for the survivors of the unfortunate *Bombay*.

LOCAL ATTRACTION WITH A VENGEANCE.—This has a new name now called Deviation. But here is a marine wonder—a ship without it!

The curious magnetic polarization of H.M.S. *Northumberland*, arising from her having been built north and south, has been destroyed by reversing that position and then de-magnetizing her by means of two of Grove's batteries.

We have treated in another page of the present number on this very misleading paragraph.* We might as soon expect it to be true as that the deviation of the compass were a thing of the past instead of a fact of the present age. And yet it appeared in the *Athenæum*, of all other papers.

Surely Mr. Grove himself could never have authorized this.

PHILLIPS'S HOG.—What in the world is this we said? what is there nautical in a hog? occurred to us, when we remembered something about hogging a ship's bottom; and in these days of iron craft, if we mistake not, many a one wants the aid of that marine animal. How-

* We are obliged by want of space to defer our remarks.—Ed.

ever, on reading a little further, we soon recognized a child of our own fancy that promised well, and has realized all the sayings we gave it in our February number of 1864, by its doings ever since. We take this opportunity of again commending it to our readers, and especially to the owners, as well as the commanders, of our iron or copper-bottomed, or any other metal-bottomed merchant craft, that are afflicted by the growth of that abominable nuisance to fast sailing, "the weed." They will find some good testimony concerning it in our present number, from the patronage of her Majesty's yacht, as well as others of her Majesty's ships. We said it was the right thing long ago, and all that is required is to put it in the right place, that is, on every ship's bottom, foul, weedy or not, that is afloat. It is generally agreed that prevention is better than cure, and no ship that is supplied with Phillips's Hog need be allowed to get a foul bottom. By its timely use there can be no chance of the weed growing.

The following arrival from America was announced in the *Daily News* of the 18th of August last :—

EXTRAORDINARY VOYAGE ACROSS THE ATLANTIC.—On Thursday afternoon a fully-rigged vessel, of two tons burthen, named the *Red, White, and Blue*, (master and commandant J. M. Hudson, of New York), entered Margate Harbour, having completed a most daring and extraordinary voyage from America in thirty-eight days. Her crew consisted of two men, who were accompanied by a dog. She is built on the lifeboat principle (of metal), has air-tight compartments, and is only twenty-six feet long—about the length of a small sailing boat. She experienced a rough voyage, and the crew have determined, on their return journey, not to risk their lives by again attempting so daring and extraordinary an adventure. They had several narrow escapes from being washed overboard.

This little craft, which turns out to be a small boat, was sought for and lodged among the "curiosities" of the Crystal Palace, for the benefit of those who love to see such wonderful little things. But the novelty somehow has been suspected, and serious doubts are entertained that the fact of the feat of crossing the stormy Atlantic on her own bottom on the ocean was ever done by her, and that she, like other boats, was simply carried over, although she was set afloat off Margate as a gull for John Bull. In this exigency, some paper comes to her assistance thus :—

Some persons are asking if the little vessel *Red, White, and Blue* is the property of Barnum. It is known to have left New York and to have been again seen off the Start; but there seems some doubt whether between those wide points she sailed or was carried. Such a feat as ocean navigation by a very small vessel is not unprecedented. Seven years since, three Cornish fishermen, in an open Cornish boat of small tonnage, sailed from the little port of Newlyn, Penzance, and safely traversed the Atlantic to the Cape of Good Hope, and the Indian Ocean to Melbourne, where they arrived "all well!"

Well done Sydney :—

“The inhabitants of Sydney have resolved to erect a monument in their town to commemorate the discovery of their country by Captain Cook. The monument is to be completed in 1870, in which year precisely one century will have elapsed since the discovery of New South Wales by the English navigator.”

We have heard of something of the same kind at the Sandwich Islands, named by Cook on account of the Earl of Sandwich being First Lord of the Admiralty at the time of their discovery.

While our present number bears testimony to the successful completion of the cable of 1865, those of the British Channel seem to have been suffering from the severe gales of late, proving them to be less secure than even that giant undertaking. But we quite agree that as we now have two lines to America we should have more than three to France.

“The submarine cables, (says the *Moniteur*), connecting the coasts of France and England have recently sustained injuries of a nature to interrupt the communications between Paris and London. The cables belonging to the Submarine Telegraph Company of the Channel are three in number. Whilst that from Calais was being repaired, that between Boulogne and Folkestone, containing six wires, was accidentally broken on the 9th day of September. The transmission of despatches can now only be effected by the line from Dieppe to Beachy Head. The conducting wires, four in number, which join the submarine cable on the English territory, are insufficient for the rapid interchange of numerous despatches between the two countries. The telegraph communications between Paris and London will therefore be liable to considerable delays till the two submarine lines are re-established by the company.”

CHARTS AND BOOKS PUBLISHED BY THE HYDROGRAPHIC OFFICE, ADMIRALTY, in September, 1866.—Sold by the Agent, J. D. Potter, 31, Poultry, and 11, King Street, Tower Hill, London.

2,750.—Scotland, West Coast, Skipport Loch, Captain Otter, R.N., 1863, (1s. 6d.)

2,373.—Baltic Sea, Riga Gulf, Russian survey, 1862, (2s. 6d.)

1,159.—Mediterranean Sea, Barbary Coast, Soussa to Mehadiah, with Kuriat Islands, Commander Wilkinson, R.N., 1864, (1s. 6d.)

1,676.—Ionian Sea, Patras Gulf, and Views, Captain Mansell, R.N., 1865, (1s. 6d.)

744.—Cape Ramas to Alvagudda, Lieutenant A. D. Taylor, I.N., 1855, corrections to 1866, (2s. 6d.)

EDWARD DUNSTERVILLE, *Commander, R.N.*
Admiralty, Hydrographic Office, 20th September, 1866.

THE
NAUTICAL MAGAZINE

AND

Naval Chronicle.

NOVEMBER, 1866.

THE LITTLE MINCH CHANNEL.

How to select a subject:—How to commence it:—How to treat it when commenced so that it will please everybody:—Who shall do all this? Certainly no juvenile pen like mine. Therefore I take my lesson from the celebrated painter who failed in that attempt at pleasing every one long ago, and shall strive to please no one but myself in this my essay in authorship. And considering it is but a few lines of a journal, I shall be satisfied if hereafter the mariner should find anything in it of service to his craft. My experience in the navigation of the Minch has been collected in storm and calm, in snow and fog, amidst those difficulties and dangers with which it abounds, as my notes in their first rough condition would amply testify. But here they are, stripped of the effects of the haste and hurry with which they were consigned to paper, and dressed in holiday attire fit to appear before gentlemen. Their more especial tendency will perhaps be found as giving some idea of the weather in that remarkable channel the little Minch; to describe the sudden changes from a quiet calm to a tempestuous raging sea, that will prepare the navigator for what he is to expect there; the products of the waters will have a small share of remark, down from the huge cod fish to the delicate veleva, and on the surface of the waters living masses of glittering salpæ and medusæ; the grandeur of Skye Island on the one hand; on the other, the almost inundated flats of Uist land. Nor will the bright aurora or the brilliant meteor with those subjects fail to supply food for contemplation and interesting employment of the mind of him who wanders to these

shores in the course of his vacation for the sake of health and recreation. And even the navigator may find a few hints here that may serve him as a useful lesson of warning about lurking dangers in his path, that if unheeded might send his barque to the realms of destruction. With these preliminaries as to object, place, and intention, it may be first stated that the Little Minch is the name of a channel or strait in contradistinction to the Great one to the northward of it.

By referring to a map of the United Kingdom, or Scotland only with the Western Isles, it will be seen that the Little Minch is a channel from thirteen to twenty-four miles wide, occupying a position between the Isle of Skye and the Hebrides or Western Isles of Scotland, on the West shores of Inverness and Ross-shire. The navigator who has passed through it knows well that it is exposed to the whole fury of the Atlantic Ocean, being entirely open to its southerly gales, and consequently is very seldom in an undisturbed or tranquil state. It is nevertheless the highway of vessels running between the ports of this country and those of Norway, Sweden, Lapland, Prussia, and Russia, carrying timber, tar, tallow, flax, &c. As might be supposed, in so important and extended a trade, vessels of heavy burden, and many smaller ones, frequent its waters in passing to the West coast of Scotland, England, or Ireland.

Considering the Little Minch as being included between the shores of Skye and the Western Isles, terminating in the North from Scalpa in Harris to the North extreme of Skye; and South from Ushenish Lighthouse to Loch Bhracadil in Skye; the area of water surface which it contains is about 500 square miles: all of which has been minutely sounded, rocks, dangers, and fishing banks carefully searched for, and their places assigned them in the chart.

The greatest depth of water in it is 111 fathoms (666 feet), off Dunvegan Head; and the least depth at a moderate distance (one mile) from the shores, 18 to 25 fathoms. It does not contain a single known *hidden* danger, except at its northern extreme, that will be mentioned in its turn.

The Little Minch contains three fishing banks, having depths from 23 to 35 fathoms, the ground composed of sand, shells, and sometimes rock, and perhaps some gravel. The most extensive of these banks is that midway between Lochs Maddy and Dunvegan, having a rock in the middle of it, with 23 fathoms over it. Another bank stands off Ben Ival in North Uist, and a third, with 21 fathoms, off Wiah Island.

The Dusgeir Rocks are always to be seen South of MacLeod's Tables, about one mile and a half from the shore. A short distance South of them is excellent cod fishing, in 14 to 20 fathoms. It is advisable, however, that vessels should not go inside of these rocks.

The Isle of Skye (which literally means misty) and indeed a better name could not be found, if we may except the more appropriate term "rainy," has the most imposing wild magnificent scenery imaginable, scenery which will well repay the traveller or tourist for his visit. The headlands of Dunvegan, Vatersteine, and Pooltiel, of 1,000 feet eleva-

tion, are nearly perpendicular faces of rock from the sea, over which they look, and there is also a depth of 420 feet water at scarcely a mile from the former. The MacLeod Maidens are backed by peculiar flat topped mountains, of 1,500 feet elevation, called *McLeods Tables!*

The West side the Minch is very much sheltered from the sea and its westerly gales, by the isles of Harris and North and South Uist, which translated simply means western lands. An entrance from the western sea lies between the two former, named the Sound of Harris. A chart of this sound has been lately compiled by the captain and officers of the *Porcupine* and *Seagull*, that gives a good idea of this labyrinth of rocks and shoals, showing the laborious, hazardous, and even dangerous task it must have been to construct. The sound has a good channel, which, with moderate caution, may be used by vessels of any burthen, affording them shelter from the fierce and boisterous Atlantic, and a safe entrance into the comparatively tranquil waters of the Little Minch.

On the East side of the Minch vessels will find shelter from prevalent gales in Lochs Bhracadil, Dunvegan, Snizort, and Pooltiel. Indeed they afford snug anchorage in any weather, excepting the latter, which is open to N.W. and West winds. There is also a small anchorage under Neist Point, near Vatersteine Head, but which is not recommended excepting in daytime; the depth of water is 7 fathoms.

On the western side of the Minch the anchorages are numerous, and much frequented by vessels bound to the southward. Every loch affords a shelter, and the principal are, Lochs Tarbert, Greosavagh, Stokenisk, and Rodel in the Isle of Harris. Lochs Maddy, Evort, Bahnacaplich, Uskevagh, and Loep, in North Uist; and in South Uist are Lochs Skipport, Ainneart, and Brisdale, with many smaller anchorages for coasters.

We will now ask the reader to turn his attention to the dangers of the navigation and the mode of avoiding them. To the mariner they already have appeared so formidable that he will naturally and anxiously wish to have them at a respectful distance.

The southern entrance to the Minch is quite free from dangers, and the yacht or even the deeply laden barque may fearlessly run into it. But at the north-eastern entrance there are some to be carefully avoided. These are, Sgeir i noe, Sgeir Graitich, Eugénie Rock, (on which a vessel of that name was lately wrecked,) Sgeir na mule, Ghiant South Rock, about $2\frac{1}{2}$ to 3 miles South-westerly of Ghiant Isles; this is however, out of the limits of the Little Minch. These are what may be termed hidden dangers, but with the simple yet sufficient directions lately compiled by Captain Otter, of the *Porcupine*, they may be all easily avoided.

1. Sgeir i noe (new rock) is only 3 feet above low water spring tides, and about 50 yards in extent when dry. On its western extreme there is shoal water for a short distance, near which a black buoy is placed.

2. Sgeir Graitich (nameless rock) is of small extent and uncovered at low water. A cast iron beacon, 46 feet high, stands on it.

3. Sgeir na mule (bald rock) is awash at high water. This also has an iron beacon placed on it. The West side of this rock is dangerous to approach.

4. Eugénie Rock is close on the South side of Sgeir Graitich, having only 3 feet water on it.

5. There is also a similar rock off the South end of Sgeir na mule, which rock completes the list of all the *known* dangers. The three former are well marked by beacons and buoys, and the two latter are so near to these, that no prudent master of a vessel would venture there.

The lighthouses to guide the mariner in these waters are on Barra Head, Ushenish, Glas Island, and a proposed light on Hasgeir or Hysgere, on the West side of North Uist, to lead vessels from the Atlantic to the Sound of Harris.

Barra Light* is 680 feet above the sea, being an intermittent flashing light; white for 2½ minutes, then eclipsed for half a minute; visible from N.b.E. to E.N.E. by westward and southward. Visible 33 miles in clear weather.

Ushenish (South Uist) is a fixed light, 176 feet elevation; red light, visible from S.S.W. to N.E. by the South and East: seen 18 miles.

Glas Light is fixed, 130 feet elevation, visible from W.b.S. to E.N.E.½ E. by the South, and ought to be seen at a distance of 17 miles.

A vessel approaching the Minch from the South, should the weather become rough and the wind boisterous, might be compelled to seek an anchorage in Bhracadil. Port na Long will afford the required refuge in 7 fathoms, or a few miles further in it she may bring up at Loch Earport, in 8 fathoms, off the distillery, in the village of Carabost.

These gales are soon up, and the vessel that is caught in one had better run for snug quarters on their first appearance. Some idea of their fury may be formed from the following account given of one by M'Culloch, which tells the yacht cruiser what he has to expect. It came on at night, and, he says:—

“ I had scarcely fallen asleep, when I was roused by all the noises to which a seaman's ear is alive. At first came low, rustling, and intermitting sounds with an occasional hollow noise like distant thunder; succeeded by a tremendous and unintelligible roaring, with intervals of an awful silence, as if all nature had expired at one violent effort. Shortly they became more frequent and more steady; and as the squalls came down the mountain in more rapid succession, causing the vessel to heel to their force, they hissed through our rigging as if the trees of some ancient forest were yielding to the storm which was to tear them from their rocks. Exasperating themselves at intervals, they now whistled loud against the mast: the tones increasing in

* British Island Lights, 1859.

† Directions for the Little Minch, by Captain Otter, F.R.A.S., G.S., H.M.S. *Porcupine*.

acuteness, as if augmenting in rage till the whole was one fearful concert of furious, angry noises, intermixed with the general hissing uproar, and the short inveterate bursts of an obscure, deep, hollow sound, more heart-sinking than that of thunder. It seemed as if all the storm demons of the mountains had at once been let loose on us; and experienced as we were in these islands, we agreed that Cuchullin was the only and true parent of squalls.

"All the men were on deck in an instant: everything around was darkness, except when the surging of a white sea to leeward breaking on a reef of rocks gave a transient gleam, faintly illuminating the high cliffs around us like a feeble lightning in a dark night. 'See the lead ready,' was the cry; and on heaving it over the stern, there was found to be only a fathom of water. We were drifting fast on the rocks. All hands flew to the windlass; the foresail was hoisted; and the anxiety of many hours was condensed into a few minutes that bowed us into deeper water, and brought the anchor afloat. It was a shorter, but a more terrific moment, when it left the ground. We made stern way. 'Put up the helm,' said the captain. The landsman ran to the tiller; the vessel struck the rock with her keel, swung round into the surf, cleared the breakers that were foaming far away under her quarter, and, in a few seconds, we were in deep water.

"In the morning we were off Rum, beating under a try sail, '*per l'aer nero e per la nebbia folta*,' as the captain meant to anchor in Loch Scresort. The sea was running short and fearful; the squalls from the mountains whirling it up in one universal sheet of white foam. 'So wonderful, prodigious was the weather, as if Heaven and earth had meant to come together.' Our cutter kicked, and rolled, and floundered most villanously; having the property, as seamen call it, of making bad weather. As if it was not bad enough already. But this is a common trick even with ladies and gentlemen on shore, as well as cutters at sea; when, not content with catching the evil in the simplest way, as you do a stone, by turning your back on it and receiving it on a soft place, they rebel, and twist, and turn, and flounder about, till it hits them in the worst of all possible places with a vast increase of the consequent grievance. The ills of life commonly require a helping hand to perfect them; and the general rule is when the poker falls on the fender always to knock down the shovel and the tongs. 'Gossip, by your leave, quoth Mother Bumby, I do well perceive the moral of your story.' It ended by the captain resigning the pilotage to the landsman and bearing up for Canna. We should have floundered at our anchors in Loch Scresort in half an hour; as I chanced to know."

Leaving our reader to profit by this opinion of Loch Scresort recorded off Rum close by us, we will now return to Skye.

Should the gale be of long duration, the voyager will find quite enough to employ him in the surrounding scenery, besides the distant view he will have of the Culen hills.* They derive their name from

* Culen signifies in Gaelic, a holly leaf, and is here appropriately applied.

their peculiarly rugged and irregular outline, having some resemblance to a holly leaf. The masses of cloudy vapour perpetually hurrying with the wind over their summits, which are upwards of 3,300 feet high, contribute much to their wild and majestic appearance.

These hills, the Culen, (Cuchellin,) are the highest in the isle of Skye, and their tempting aspect is a great inducement to scale their height. Assuming Loch Earport to be the rendezvous of the voyager, where his craft will lie secure and snug from the gale, he will see them in all their wild majestic grandeur. He will now and then discover their dark and rugged summits towering over dense masses of vapour, as they are hurried away by the violence of the gale,—their smooth and almost vertical sides here and there presenting huge fissures in regular veins, scored by deep ravines, but ever varying and ever changing to the unwearied eye.

To the North-east of these, towards Broadford, stands a mass of perfectly conical shaped hills, attaining the height of 2,300 feet, and composed chiefly of syenite interspersed with felspar, beautiful to behold when an accidental ray of sunshine lights them up and gives them prominence in the picture. Blaven or Blatsheinn is another magnificent peak, more than 3,000 feet high.

But the Culens present the most ragged and fantastic outline imaginable, far beyond all these mountain tops. The former appear of a light red colour, while these present a brown or green cast of colour on one side, and a purple hue on the other. They are chiefly composed of hypersthene rock,—and indeed it has been asserted by good authority, that there are evident traces of ancient glaciers among them.

Washing the base of these hills lies the deep, dark, and solemn Loch Corrisk, from which the Stron-na-stree (or hill of strife) rises with precipitous sides, towering over the silent depths beneath it with magnificent grandeur, and reminding the visitor of Walter Scott's lines,—

“Rarely human eye has known
A scene so stern as that dread lake,
With its dark ledge of barren stone,
That sees grim Coolin rise, and hears Corrisken roar.”

The term barren is well applied, for here vegetation is banished. And yet the lake abounds with excellent trout. At the head of it the red deer may be seen visiting the ravines on his own account, while far above him the eagle is soaring over the rugged peaks of the Culens, rising from amidst—

“Black waves, bare crags, and banks of stone.”

Not very far off is the celebrated spar cave, to which every tourist resorts, and many hundreds of them have assisted in destroying or wholly defacing the groups of fanciful figures formed by the calcareous water. These are hardened into petrifications, which surround all parts of the interior, more resembling a statuary establishment than anything else that can be imagined. Portions of all these petrifications have been carried off, and even the smoke from the lights and torches

which they used has darkened and defaced the beautiful crystalizations. Still there is much that is worth seeing.

Should the traveller expect to find here a cave of immense grandeur, another Antiparos, or such as is well known in he will be disappointed. This is but one in miniature, which on first entering it appears dark and dreary. The passage into it is merely the effect of the sea washing away a soft material, thereby leaving the veins of basalt to form the cave,—an effect which is frequently found on the South part of Skye; one of these caves on the North side of this isle, near the Storr, at Portree, having been the refuge of the celebrated Prince Charley.

The total length of the cave is about 260 feet, the height 45 to 50; but the entrance not more than ten or twelve feet. The portion containing the stalactites and ornamental statuary is not more than 40 or 50 feet square; the ascent to it being considerable, to the visitor resembling a frozen cascade.

It was my good fortune to be able to avail myself of an opportunity which offered for visiting this spar cave, accompanied by a "right merrie" party of no less than twenty-eight persons, ladies as well as gentlemen, of all ages, and perhaps remarkable for their attention to fashion in dress. We had not only the expanded muslins, but also the military heel. And then as to age, we had the school girl in her short dress and crochet garments, as well as the more quiet matron in her sombre attire, and, as might be expected in so large a party, the engaged as well as the engaging, and why not the expecting; in fact we were all busy not only in our attention to the object of our visit, but also to each other, as all members of polished society should be!—the water smooth, and the day fine, although a heavy shower now and then came just to remind us that we were in the isle of Skye. Perhaps, after all, there is some advantage in rain here. It does not keep one long in suspense, nor does it require much time to calculate how long one will be in getting wet through. But was it not the very day of her Majesty's departure for Cherbourg? and was not that enough to assure us fine weather? So we concluded for prosperous skies and a bright sun.

As an inauguration of our expedition, and to satisfy curiosity as to the effect, a great gun was fired at the mouth of the cave, and those magnificent reverberations followed which were, or not, expected. The landing was the next business, and somewhat difficult it was, being slippery, so that each of us to set foot on *terra firma* had to be carried like great babies in the arms of the seamen (not on their backs, as the guides say) over slippery boulders clothed with sea weed, then to be set down on peat or bog instead of dry land. However, we were ready for anything, and soon a procession was formed, the brave first, the timid in the rear, for two reasons; each of us bearing a lighted candle. Ropes were led up the glassy ascent by two sailors, and secured one on either side of the cave. Thus, with the assistance of a rope in one hand, and a lighted taper to guide the footsteps in the other, all (with one or two exceptions) ascended without much trouble,

But without a rope this would have been exceedingly difficult and perhaps impossible even for a man to ascend. It was perhaps judicious, for evident reasons, that the ladies followed the steps of the gentlemen in thus proceeding, which was dictated from no indifference to their safety or from neglect. So having thus gained the summit, which was the extent of the cave, we were rewarded with the view of a transparent lake of water, many feet deep, reflecting all within the cave. The light was singularly beautiful, and all of us had the additional but questionable advantage of a constant shower bath from the drippings of the forming stalactites, an advantage which no doubt we should have willingly dispensed with. However we were all of us in for a soaking wet treat, that we might remember our visit to the cave. And the treat was taken in good part. There were plenty of amusing remarks on the advantage of cool heads from the drippings, and much good humoured resignation to what could not be cured.

But we had attained the summit in a brief space of time, and now the scene was to be changed! The leader of our party, as soon as our return was decided on, directed all lights to be extinguished, and a state of total darkness followed. But previous to this measure two men were placed on projections of the cave above us, each of them holding a blue light, and these when fired, displayed a most magnificent scene, one that from the very nature of the place we were in, is not to be equalled above ground. Each spark as it fell from the blue lights was reflected a thousand times from the lakes and pools of water beneath us; and as we looked at each other, striving to recognise faces, they appeared of a lurid purple; in fact, we were each of us hideous objects to look at. Alas! even those who had but just been seen as all in all to each other, as perhaps the loveliest beings on earth! were now on a sudden become frightful, and rather objects of loathing than of love! *Sic transit, &c.*, but never mind.

Well, the blue lights were exhausted, and once more their weird effect gave way to the wholesome light of our candles. So after a little plundering by our party of the tempting portions of stalactites and malactites around us, as all English people are wont to do, we effected our descent without accident, the ladies of course assisting with their frounces and boots to give an additional polish to the already glassy floor beneath, for the benefit of those who might come after them.

Our ladies' party very prudently had supplied themselves each with a pair of dry stockings in their pockets for this adventure, for which their wet condition amply showed the necessity, and clothes-lines having been arranged in the engine-room of our craft, the fires touched up, and stokers excluded, in about twenty minutes all the soaked habiliments became as dry as comfort required, and we were again on our way to the dark and gloomy Lake Corrisk.

(*To be continued.*)

ELECTRIC TELEGRAPH CABLES.

The employment of the electric telegraph in all human concerns, where despatch is desirable, seems now to be an established fact. Neither land nor sea interrupts it. It either scales or penetrates the mountain, and in the depths of the ocean finds its bed, carrying its mysterious and wonderfully unerring agency at command! In our last numbers we have announced its success, and traced its progress across the ocean. The possibility of extending it so as to embrace the circuit of the globe is no longer to be doubted. The last difficulty which the great breadth and depth of the Atlantic ocean seemed to present, is now overcome, and it sleeps more tranquilly under the storms and gales which agitate its surface, than it does at the bottom of any other sea. Its promoters may safely exult even in its far greater security there; for while in shallower and narrower seas it is more liable to the disturbance of the tide and destruction from surf or anchors, these are matters which have little concern with the wide ocean. Besides which, in miles of depth, tranquillity reigns, while shallower seas are disturbed by the troubled waters of the ever unquiet surface.

The Atlantic cable, with all its vicissitudes and difficulties, is now a matter of history. In these pages we have already recorded its progress to completion, but the details of those vicissitudes and difficulties will always lend an interest to its history, which history will immediately concern those especially, who from personal motives have narrowly watched its progress. And the whole of that progress from the disastrous failure of 1858 to the glorious result of 1866, which instead of one, placed two cables across the widest sea occupied by it, at the command of England, is one of those triumphs of skilful enterprise, the important effects of which it is hardly possible to over-rate. And among them will prominently stand out the fact of the disappointments of one year contributing to double the triumphs of the next. It was soon perceived in the latter days of July last, that the new cable of this year was a perfect success. There it lay by the side of its less fortunate companion of last year. But that companion, broken, yet not mutilated, was soon roused from its sleep of a year in useless idleness, by the hands of the seaman, aided by his science, and after persevering untiring exertion was rescued from its state of lethargy, and converted into another valuable cable, quite as efficient for its important purpose as that which had just been laid down. The latter days of July and the early days of September were days of triumph to the seaman who was charged with this great work, and congratulation to the countries which that work linked together in electric intercourse, and there were those who well appreciated the great service thus rendered. Among the earliest were the captains of our merchant service ships, who addressed a congratulatory letter to their brother officer, Captain Anderson, who commanded the big ship which had achieved this work. And the staff of electricians were thus congratulated by Mr. Glass. We

read in the *Daily News* of the 21st September, the following letter sent by Mr. Glass to the Great Eastern Staff:—"To Samuel Canning, Esq., Captain Anderson, Henry Clifford, Esq., Willoughby Smith, Esq., and Professor Thomson.—Gentlemen,—The only alloy to the satisfaction arising from existing circumstances is that I cannot be the first person to welcome your return to England, and to express my warm appreciation of the skill, energy, and devotedness which have brought the expedition of 1865 and 1866 to a triumphant issue. I have day by day earnestly hoped to gain sufficient strength to come down by easy stages to Liverpool, and there to meet the *Great Eastern* before she came into port, but my doctor's orders are imperative, and I am at the eleventh hour compelled to deny myself the gratification upon which I had set my heart. I cannot, however, allow you to land or separate without assuring you of feelings which are of a warmth and more personal character than can be conveyed in formal votes of thanks or minutes of approval, however hearty. Most of you have laboured with me in the cause of Atlantic telegraphy for many long years—have looked steadfastly and hopefully forward to the goal we have arrived at now, and have with me made the establishment of electric communication with America one of the absorbing considerations of your lives. The number of difficulties and disappointments we have experienced and surmounted together are known only to ourselves, but it is cheering to remember now that each of these strengthened our confidence in each other, and our faith in ultimate success. The unrivalled experience and sound practical knowledge, the consummate nautical skill and profound scientific acquirements you possess collectively, are already fully recognised by your countrymen, and it is only on personal grounds that I regret to be prevented telling each of you this while heartily shaking you by the hand. Under present circumstances, however, I must ask you individually and collectively, and with you every officer and man of your respective staffs, to accept my heartfelt thanks for a co-operation which has been more than enthusiastic, and to which, under God's blessing, is to be attributed the success of our many anxiously devised and thoughtfully considered plans. As it is my particular desire that this greeting should reach you before your party breaks up, I have asked Mr. Parkinson to kindly take charge of it, as he I believe will see you all before the *Great Eastern* comes to her moorings. With respects, thanks, and congratulations,—I am, gentlemen, yours faithfully, B. A. GLASS. Ashurst, Dorking, Sept. 17."

Now we are far from questioning the great merit of all these officers in that "*skill, energy, and devotedness with which they have brought the expedition of 1865 and 1866 to a triumphant issue.*" We even congratulate Capt. Anderson on the address which he and his officers received—the whole engineering staff as well as he have nobly earned their laurels. But is there not another officer whose name does not appear among them, and but for whose services the work of all these gentlemen would have been simply *nugatory*! Who was it that navigated the ship on these two most important occa-

sions, and so punctiliously correctly, that having laid the new cable, she was enabled this summer to return to the scene of her disaster of last year (although the buoy was washed away that was left on it) and to go to work without a moment's loss of time, in the wide ocean, as if the buoy was there to shew where the cable lay, and where to drop the grapnell. Was it not the valuable assistance of Staff-Commander Moriarty of the Royal Navy, that facilitated all this, whose observations, for his chronometers are above all praise—the latitude was a common place affair enough, but the longitude of the broken end required that accuracy in nautical astronomy which only the experienced navigator can command. And yet we have not seen even the mention of Mr. Moriarty's name, as if his services were nothing, when there was really more science displayed in them than in all the rest put together. We do not say this to their detraction, but we do say that the science of nautical astronomy and navigation leaves the attainments of the electrician far behind in the scale of importance; and we have no doubt that Captain Anderson himself would bear ample testimony of the important services in this respect that he derived from the officer who so ably navigated his ship. We do hope therefore it is not too late to remember that it was the skill of Staff-Commander H. A. Moriarty that fixed geographically, and found the broken end of the cable of 1865, and which has placed the two cables side by side as they now lie in the deep bed of the Atlantic ocean—for while this officer, by whose superior services glittering rewards have been gained still remains unnoticed as he has been, the subject of the Atlantic cable cannot sleep quietly, as having been dismissed with justice to all who were concerned in its efficiency.

On the return of the *Great Eastern* to Liverpool, at the banquet which was given to her officers, the chairman, Sir Stafford Northcote, in the course of the evening, said that Her Majesty was desirous of testifying her sense of the merits displayed in this great enterprise, and had commanded his lordship to submit for special marks of her royal favour the names of those who, having had assigned to them prominent positions, might be considered as representing the different departments, whose united labours had contributed to the final result, and had commanded him to convey her congratulations to all whose energy and perseverance, skill and science, had triumphed over all difficulties, and accomplished a success alike honourable to themselves and their country. Her Majesty had accordingly directed that Capt. Anderson, Professor Thompson, and Messrs. Glass and Canning, should be knighted; and that Mr. Lampson, deputy chairman of the original company, and Mr. Gooch, M.P., should receive the honour of baronetcy; and if (continued the chairman) Mr. Cyrus Field received no such mark of royal favour, it was because Her Majesty did not wish to interfere with what might seem to be the natural functions of the government of the country to which Mr. Field belonged, and which he had served equally with this country, in the work which had been done. Lord Derby had wished to confer upon Captain Anderson some further mark more immediately connected with his own profession, but he had been greatly disap-

pointed to find that neither the rules of the naval service, nor the statutes of the order of the Bath allowed him to do so.

This was an honourable and gratifying conclusion of the last all important services rendered to the cause of electric telegraphy up to the present time. We will now trace some further features of this very subject. It is a remarkable fact that contributes much to the importance of the cable of 1865, that has been so cleverly recovered in the Atlantic, that its conducting power has been much improved by lying on its cool bed for a year. The power of conductivity as it is termed, is pronounced superior to that of the new cable; but it is an established fact in the history of telegraphy, that the insulating medium, the gutta percha becomes more effective in submerged cables with age:—a happy circumstance which adds greatly to the endurance of the electric cable. What bounds may be assigned to this endurance the whole subject seems as yet scarcely sufficiently emerged from its infancy to determine. Still there are some important facts derived from other cables which promise well in this particular.

The peculiar art of insulating the copper wires with gutta percha, seems to be as yet confined but to one firm in London, or at all events, we have as yet learnt of no other, and this (the Gutta Percha Company provided it) forms a distinct branch of the Telegraph Construction and Maintenance Company, which took a very large share in the last Atlantic cable. It is stated that this Company has already insulated the wires of no less than fifty-four submarine cables, all of which are now in good working order. One or two of these may be mentioned here, from which safe conclusions may be drawn in reference to the Atlantic cable. The longest is the Malta and Alexandria, 1550 miles, but the greatest depth which it lies in is not more than 420 fathoms, while that of the Toulon and Corsica, only 195 miles long is lying in 1550 fathoms water. Now this has been in working order for the last six years, and the former about five years, the latter having been repaired more than once, owing to its exposure to the agitation of the sea on shoals near the African shore, as well as to the ground tackle of the sponge fishery. Again the Persian Gulf cable to Kurrachee is 1450 miles long and is lying in 150 fathoms, and the cable between Barcelona and Mahon, although not more than 180 miles long is lying in 1400 fathoms, and has been working for six years.

These facts augur well for the Atlantic cables, both as to extent and durability, and in point of perfection of order and remarkable power of conductivity, the following letter which has just appeared in the public prints of the day must be highly gratifying to the shareholders as to the powers of the two Atlantic cables. It is in fact a most interesting document, confirming the original report, and shewing a power of transmission throughout twice its vast extent for which we believe not even the electricians themselves were prepared.

The secretary of the Atlantic Telegraph Company has received the following letter from Mr. Latimer Clarke, dated Valentia, September 12, 1866 :—

“My dear Sir, — You have doubtless received through Mr.

M'Curley, the certificate of the completion of the cable of 1865. I have since been engaged in repeating all the tests of both cables at greater leisure; the results are most satisfactory, and bear ample testimony to the great care and skill which must have been bestowed upon them at every yard and in every stage of their manufacture. The insulation of 1865 cable is even better than that of the 1866, but this is doubtless attributable to having been longer submerged—time having the well-known effect of improving the quality of gutta percha.

The cable of 1866 has, however, also so greatly improved since it was submerged in July last, that it is doubtful which will ultimately prove the better.

The perfection of the insulation of these lines is very gratifying, and must certainly appear surprising to any who are not aware of the great advances which have of late years been made in every branch of telegraphy. If either of the cables, for example, be disconnected from the earth and charged with electricity, it requires more than an hour for the half of the charge to escape through the insulating covering to the earth. With a single galvanic cell, composed of a few drops of acid in a silver thimble, and a fragment of zinc weighing a grain or two, conversation may readily, though slowly, be carried on either through one of the cables or through the two formed together at Newfoundland so as to form a loop, and, although in the latter case the spark, twice traversing the breadth of the Atlantic, has to pass through 3,700 miles of cable, its effects at the distant end are visible on the galvanometer in a little more than a second after contact is made with the battery.

The deflections are not of a dubious character, but full and strong, the spot of light traversing freely through a space of twelve or eighteen inches on the scale, and it is manifest that a battery very many times smaller would suffice to produce similar effects. The length of the 1865 cable is 1,896.48 nautical miles, being 38 miles longer than that first completed, but there is no apparent difference in their speed of working.

The clerks are rapidly gaining experience and confidence in working, and have in some short and exceptional trials attained a speed of even 17 or 18 words per minute. Judging from the experience afforded by other cables, and from all that is known of the character of the bottom of the Atlantic, there appears every reason to expect that these cables will maintain their electrical perfection through a long series of years.—I am, dear sir, yours faithfully, (Signed) LATIMER CLARKE. To George Seward, Esq., Atlantic Telegraph Company, London."

So rapid a transmission of the electric spark across the Atlantic, in a little more than a second of time, may surely be compared with the rapidity of the progress of lightning itself. These facts appear sufficient of themselves to set at rest all the misgivings, all the doubts and fears arising from enormous distance, great depth, exhaustion of the electric spark, feeble or broken insulation, and is the most triumphant

answer deduced from actual experience that the best friends of the great cables could desire. The dangers of immersion which, in our opinion, has always been the great obstacles to overcome, the violent seas, gales of wind, thick dense aye blinding fogs, even the effect of icebergs, all these were the real bugbears which very naturally were magnified into important obstacles to final success—to say nothing of those mischievous slips of copper, which, whether by design or not have been found sticking in the coating of the insulation, and penetrating to the very core which it was intended to protect: even all these have been overcome by sheer skill of the seaman and the engineer, and the cause of submarine telegraphy has been well vindicated, its wonderful and unexpected truths established, and the cables now spanning the Atlantic are practical proofs sufficient to set aside as they are daily doing, all the fears of the timid and all the objections of disbelief.

There is one feature of the subject that is of so much importance as to be worthy of attention, and that is the immediate discovery of flaws in the cable. The value of this is at once evident for were it not that tests of the conductive power were being applied at short intervals the laying down of the cable might be soon found to be of no purpose; but as communication during this process is ever and anon going on with Valentia, a flaw is no sooner in the water than the signal from Valentia betrays it. We read in our last number, "While a message from Valentia was being received, the spot of light disappeared from the galvanometer, indicating 'dead earth.' This was in the cable of 1865, and was immediately detected by the invention of Mr. Willoughby Smith. The fault was immediately determined to be not far from the ship, and the cable was accordingly recovered as far as the fault was indicated. There was nothing in its general appearance that indicated the presence of the cause; all was uniform even to where the mischievous piece of iron lay, and it must have been there during the voyage, adhering harmlessly to its place, until the manipulation of the cable drove it into the gutta percha, and the effect shewed itself in the escape of the electricity. However it was soon detected, and the piece of cable containing it being cut out and the parts rejoined, this has been preserved by Mr. Canning to place with other samples of the cable which exhibit these formidable incidents. Suspicion had been afoot that these incidents were maliciously intentional; but it is gratifying to know that conclusions have been arrived at on sufficient reasoning from other similar faults besides this, that they were purely accidental, and that the bits of wire by which they have been produced have been laying in the coils since they left the manufactory.

Some remarks have been made of the bottom being found once on the chart of a different nature to that indicated by the soundings found by the *Great Eastern*. If it could for a moment be supposed that the exact spot of a sounding could be found we should attribute some importance to this remark; but does any one imagine that such a site as where the lead once fell and brought up the bottom, can be precisely

hit again? They know very little of navigation, of the difficulty of arriving at a second of longitude who advance such an assertion. A second of longitude occupies in the latitude of the cable about 23 yards, and one of latitude about 100. And, supposing it possible (which it practically is not), that even the lead was dropped within that space of 23 yards (about the breadth of the *Great Eastern*), might not rock be found in one part of it and sand another? Verily landsmen must not expect that sailors navigate the ocean "to a hair's breadth." No chronometers ever yet agreed to within 23 yards of each other! Such refinement of observation is not even attained by many an observatory on shore, with all the advantages these possess of large instruments and all the appliances which belong to *terra firma*. No, the *Great Eastern* did well in all her works, her calculations were good and her observations most creditable and chronometers most excellent; but her success, it is very well known by seamen, lay more in the facility of finding correct latitude than in splitting seconds of longitude. So he that would impugn a sounding in an Admiralty chart, must shew a better cause than he can do in the longitude of the *Great Eastern*.

There is another very important invention in the history of the electric telegraph, called the curb key by electricians, the joint invention of Mr. Cromwell Varley and Professor Thompson. The purpose of this is to separate the signals from each other. It consists of an apparatus formed of a series of induction plates, or condensers and resistance coils. The size of each of these can be varied at pleasure, and made so as to represent any line of cable on a minute scale. But we shall not interfere with the province of the electrician, and it is sufficient for us to know its great value of defining clearly each signal that is made, so that, as we have seen, above seventeen signals can be definitely separated from each other, and travel on their course, in the space of one minute without interfering with each other. In fact, it has the power of reducing to regularity and order what would otherwise be a mass of confusion and unintelligibility. Suffice it to say, that in the expedition of the *Great Eastern* this summer, on the business of the electric cable, every tittle of experience in electric matters has been turned to account. This experience, with that of our seamen in their own peculiar calling, has been eminently successful, and it will be against all former experience, including that which we have above mentioned of the cables previously in operation, if the Atlantic cables do not endure much longer than those have done, a due attention being paid to their shore ends.

In the course of our remarks we may have occasion to return again to the Atlantic cables, for there is much connected with them that we have reserved, as well as relating to the Indian cable, which seems to have been a *vexata questio*; the difficulties of that by the Red Sea, to which we have already alluded in this work, rendering the attempt by the Persian Gulf necessary. Nor is this either without its troubles, as will be presently seen. The great success of the Atlantic cables (of

which we gave a chart in our last number) having caused a *furor* of exultation, and very naturally so, its success we considered as well worthy to occupy our first attention.

It has been tritely remarked "that the success of the Atlantic telegraph will, no doubt, revive the projects for connecting England by submarine cables with her colonies and possessions, and make her independent of foreign countries for telegraphic news. It has now been demonstrated that a telegraph cable 1,700 miles in length can be safely laid down in a tempestuous ocean of enormous depth. The distance from Falmouth to Gibraltar is 1,000 miles, from thence to Malta is 981 miles, and from thence to Alexandria is 819 miles. From Suez to Aden is 1,303 miles, from thence to Bombay 1,664 miles, from Galle to Singapore 1,594 miles, and from thence to Hong Kong 1,437 miles. From Galle to King George's Sound 3,330 miles, from Australia to New Zealand 1,000 miles. From Aden to Seychelles is 1,396 miles, from thence to Mauritius is 940 miles, and from thence to Natal is 2,000 miles. From Newfoundland to Bermuda is 1,200 miles, and from thence to the midst of the West India Islands is 900 miles."

Time will doubtless bring all these into being. Meanwhile we will preserve the annexed account of the new Baronets and Knights resulting from the success of the Atlantic cable as we find it in the *Railway News*:—

Sir Daniel Gooch, Bart., M.P., has the honour of being the first engineer upon whom the dignity of a baronet has been bestowed; and it is gratifying to know that the exception to the usual grant of a knighthood has been made in connection with the successful laying of the Atlantic Telegraph. Sir Daniel Gooch, M.P., was for many years locomotive superintendent on the Great Western line, and is now chairman of the company. He is a distinguished freemason, and held in high reverence by the brethren of the mystic tie. He was at one time grand sword bearer of England, and is at present provincial grand master of Wilts, to which honour he was promoted on the death of the late Lord Methuen. He was one of the mortgagees to whom the great ship was mortgaged for £100,000, and when that vessel was sold for £25,000 over and above all liens upon her, he was one of her purchasers, with a view of employing her in the service from which she has lately come home as popular as she was once decried. Sir Daniel is also a director of the Telegraphic Construction and Maintenance Company, and is, wherever practical experience and unflinching energy are required, a most valuable labourer.

Sir Curtis Mirander Lampson, Bart., was born at Vermont, in the United States. He takes his second name after that great Spanish general, who at the beginning of the present century and during the struggle for American independence, attracted so much of the admiration of the then struggling British colonists, by his efforts to obtain the liberation of the Spanish American colonies, and so much of public sympathy for his sufferings and ultimate death in the prison of the Inquisition at Cadiz. The early life of Sir Curtis was passed in the

hunting and fishing grounds, which, not only in his native State, but in Canada and the Hudson's Bay territory, offered such extensive fields for the gratification of his ardent love of sport. Married in Vermont, he came to England in 1834, and permanently settled in this country. In 1848 he took the oath of allegiance, and became a naturalised British subject, and was enrolled among the friends of law and order, who, in that year did so much to preserve unbroken the public peace. On his arriving in England he engaged in the business of a furrier, in Queen-street, Cheapside, dividing with the Hudson's Bay Company almost the whole of the home and foreign trade of this country. Impressed with the value and importance of telegraphic communication with America, Sir Curtis Lampson was one of the earliest directors and shareholders of the Atlantic Telegraph Company, and with the exception of Mr. Pender, M.P., and Mr. S. Gurney, he is the only one of the original directors now connected with the old company. His perseverance and close attention to the interests of the Atlantic Company, have tended greatly to the final crowning success which has now been obtained. When the first expedition in 1857 failed, several members of the board proposed to abandon any further attempt, and recommended realisation of the assets and winding up of the concern. Sir Curtis, however, took a totally different view of the matter, foreseeing that if the company did not succeed in proving the case to the public, and showing that telegraphic communication across the Atlantic was possible, the work would be retarded for an indefinite period. He enforced his arguments with such clearness and sagacity, that his colleagues ultimately adopted his view of the case, and the expedition of 1858 was sent to sea a second time, and the success of that year, short-lived it is true, but still sufficiently decisive to establish their case, was obtained. It deserves to be mentioned, to the credit of Sir Curtis Lampson, and of the other directors of the Atlantic Telegraph Company, that, though they have devoted to it abundance of earnest and honest labour during ten long years of trial, they have never, from its first establishment to the present day, received a shilling for their services, and that on repeated occasions they have from their own resources provided the means of keeping the organisation of the Atlantic Telegraph in existence when its own proper funds were exhausted.

On the reconstruction of the Hudson's Bay Company, Sir Curtis Lampson was elected to the post of deputy-governor, and in that capacity his great knowledge of the trade and his business-like capacity have proved of great value in the management of the affairs of that corporation. Mr. Peabody nominated Sir Curtis Lampson as one of the trustees of the magnificent fund which he founded, and, in conjunction with Lord Stanley and Sir Emerson Tennant, the management of that fund has been such as to realise with the most marked success the wishes and design of its benevolent founder. The new baronet is the owner of a fine estate at Rowfant, near East Grinstead, and the old Tudor mansion, a moated grange, is preserved as an almost

sacred trust. Sir Curtis has two sons, both of whom were educated at Cambridge, and who will shortly, on his retirement, succeed to the whole of his business, in which they are at present partners.

Sir W. Thompson, LL.D., F.R.S., professor of natural philosophy in the University of Glasgow, was one of the early directors of the Atlantic Telegraph Company in 1856. Previous to joining the board Sir W. Thompson had put forward his theory of the relation which the size of the conductors and insulators in submarine cables should bear to each other, which is now recognised as the true one. Shortly after the cable of 1856 was commenced he discovered that different samples of copper, each supposed to be pure, were of different values as conductors of electricity. This discovery, and that of an apparatus for testing the value of conductors of different qualities, were applied to the construction of 900 miles of cable required for the second expedition of 1858; to make up for the loss in the first attempt, and gave it a better conductor by nearly 40 per cent. than the first one, the copper having been selected by the professor according to rules laid down by himself for conductivity. As the time for laying the cable commenced, difficulties of a formidable character were experienced in the electrical department, and Sir W. Thompson, then being a director, readily volunteered to go out in the *Agamemnon*, as acting electrician of the company, and he also accompanied the ship in the following year. After the cable was laid he remained at Valentia, and perfected that wonderful instrument known as Thompson's galvanometer, which combines extreme delicacy and simplicity of construction with large visible range of observation presented to the operator's eye. From that time to the present Sir William has been actively engaged on the subject of deep-sea telegraphy, and ever by speech and action has exerted himself to the utmost to perfect the system of telegraphic communication. He accompanied the expedition in 1865 and also in the present year, and to his galvanometer, to which are now added some improvements effected by Mr. Willoughby Smith and himself, the Atlantic Telegraph Company and the public generally are indebted for the speed of seventeen or eighteen words per minute through the submarine circuit of the cable, instead of the maximum of from five to eight words, which was formerly considered practicable. Sir William Thompson is thoroughly beloved by his pupils and friends, for his gentle and almost child-like simplicity of manner. At Cambridge he is looked up to as one of the first mathematician of the day, and the university a short time since conferred upon him its degree of LL.D. He is also a fellow of the Royal Society. After the failure to lay the cable in 1858, Professor Thompson was entertained at a public banquet in Glasgow, the people of that city, to their credit be it said, being the first to recognise honour in defeat.

Sir Richard Atwood Glass commenced life as an accountant in the office of one of the leading firms in the city, and in the course of his professional duties he became acquainted with Mr. Elliot, who had purchased the wire-rope manufacturing works of Messrs. Kuper and

Co., of Morden-wharf, Greenwich. In every respect a thorough man of business, an excellent accountant, and possessing vast powers of organisation, he was soon taken into partnership in the business of wire-rope making. Under his able direction the business soon reached that high position which it had obtained at the time of its being merged with the Gutta Percha Company, in the Telegraph Construction and Maintenance Company. In the early days of sub-Atlantic telegraphy Sir Richard Glass gave most valuable support to the enterprise by numerous experiments in the manufacture of different kinds of cable. When the provisional committee decided upon the mistaken course—for it afforded no opportunity of testing through the whole length—of having the cable of 1857 manufactured in two portions, Messrs. Glass and Elliot undertook the work in London, and constructed 1,250 miles at East Greenwich, while Messrs. Newall and Co., of Liverpool, made the other half at Birkenhead. The cables of the present and of last year were made under the superintendence of Sir Richard Glass, and it is a matter of deep regret to all connected with the undertaking that the great exertions and the heavy responsibility which the work entailed have seriously undermined his health, and that in the prime of manhood, and possessed of ample fortune as the fruits of his labours, he should be unable to enjoy the position which he has so nobly and so honourably obtained. Sir Richard Glass has a beautiful estate at Ashurst.

Sir C. Canning is a near relative of Sir R. Glass, and has been associated with him throughout all his efforts for the completion of the cable. He took an active part in the expeditions of 1857 and 1858, and may perhaps be said to possess as much practical experience as any man in the world in the laying of submarine cables. His mechanical genius, his cool and collected temperament, never more conspicuous than in the presence of difficulties, and his readiness to meet with suitable appliances any emergency that might arise, have enabled him to render most valuable assistance in carrying out the great project which has resulted in so much honour to himself, to his associates and to his country. In co-operation with Mr. H. Clifford, he succeeded in bringing the paying-out machinery to that state of perfection which it exhibited in the last expedition, and without which, perhaps, all the enterprise and energy of those engaged in it would have gone for nought.

Sir J. Anderson is an officer of great nautical experience, being well acquainted with all the seas of the world. Before he was called upon to take the command of the *Great Eastern*, he was employed in the Cunard service, and latterly commanded the *China*. When the directors of the Telegraph Company sought an officer of experience in that fleet to command the *Great Eastern*, and mentioned to Sir William Cunard that they entertained the idea of engaging the services of Captain Anderson, Sir William at once confirmed their choice, by stating it as his opinion, that of all the officers in the fleet he was the one most competent to undertake the charge of the great ship in such an expedition as that

in which she was about to be engaged. The result has fairly shown that neither the directors nor Sir William Cunard placed too high an appreciation upon the merits of Captain Anderson.

Staff-Commander H. A. Moriarty, by whose skill in nautical astronomy and navigation the *Great Eastern's* services were directed to success in the right place, is rewarded by the self-approval of having well done his duty.

THE LIGHTS OF THE IRISH CHANNEL.

In my quiet retreat, I learn that the great highway of our merchant ships to the port of Liverpool is to be lit up on the Irish side by a chain of additional light-ships placed along the western edge of the Arklow and Blackwater banks, almost within hail of each other. Desirable as such a course may appear to be at first sight, there are difficulties attending it, which if not strictly guarded against, will cause serious embarrassment to the navigator in hazy weather. When the peculiar features of lights are not readily distinguished, two or three on separate masts seen in line, or on with each other, may frequently be mistaken for one. It is a question of the pilotage examiners of the Trinity House to a candidate, "How do you know the Nab Light from the Owers, when approaching them with the vessels end on?"

Now, if such distinctions are to be employed, ships, especially, during the prevalence of a dangerous south-east wind, will often see them in that particular direction, mistake their position, and possibly compromise their safety. A steamer or sailing vessel, when running, would incur even a greater risk by such an error.

It is a singular fact, that the majority of the wrecks on the Irish banks, occur to vessels running down channel with easterly winds. During the last year the African mail steamer *Athenian*, the West Indian steamer *Barbadian*, and one of the largest iron ships belonging to the port of Liverpool, with a cargo on board insured for £200,000, have run on shore with squared yards and become total wrecks. To me this indicates that other causes than the spring ebb tide are exerting their unseen influence on our outward bound merchant ships. I believe I can add two to the list; viz. 1. Steering to pass within a short distance of the Tuskar, and 2. Compass errors. To those who doubt the correctness of these surmises I would address the following question, "How is it that for more than a quarter of a century no steamer of the Cunard or Inman line has touched on these dangerous banks?" My answer is, that their compass errors are more closely watched than those errors are on board the majority of the ships of our mercantile marine; a fact which enables them to rely with more certainty on the course steered.

In working down channel in a sailing ship the change of deviation by heeling increases the difficulty of knowing exactly the position of an iron ship. An example will illustrate this. Suppose a vessel built with her head to the North tacks when close in with the Irish banks with the wind from S.S.W. If she be in any wise crank, the westerly deviation will probably increase $1\frac{1}{2}^{\circ}$ for every degree of list. This of course, if not correctly allowed for, will put the ship to leeward of her supposed position. The master may not be well up on the subject, and feeling anxious at making so bad a log, goes about too soon, and long before he thinks he is near danger finds the ship in the breakers.

I feel assured that the majority of vessels after passing the South Stack, close the Irish coast too much with south-east winds, invariably steering so as to sight the Tuskar. Frequently when half way down channel the wind souths, and they find themselves close hauled on the port tack. Anxious to preserve the reach as long as possible, and perchance forgetting the westerly set of the strong spring ebb tide, they stand on too far, and in the flurry of the moment, strange as it may appear, sometimes mistake the Arklow for the Tuskar Light. As instances of this are on record, they prove the necessity there really is in multiplying lights on a dangerous route, of exercising an extraordinary degree of caution in doing so. Even in times of danger, the periods of revolving lights are liable to be mistaken, from the uncertainty which must always attend the correct registration of the time of their appearance and disappearance.

Coloured lights of low power can only be used with safety under peculiar circumstances, as they are apt to be taken for ships' lights. These reasons induce me to differ in opinion from many who would light the Irish Channel like Regent Street.

On the eastern edge of the Arklow I would place two lights only, distant respectively one-third the length of the bank from each end. The Blackwater I would light in the same manner, except in thick weather, when the most powerful lights become useless. These should be sufficient to warn a ship of her approach to these dangers.

I am disposed to believe that many of the accidents which occur to shipping shortly after leaving the port of Liverpool may be attributed to the *drunkenness!* and want of seamanship on the part of their crews. The disgraceful state in which many join their ships is a reproach to the British Empire, with all her nautical repute! Brought on board by force when leaving the dock half or wholly drunk, of what use are such men when battling down Channel an hour afterwards—perhaps against a foul wind. If the *Board of Trade* would turn their attention to this point, and less to the neglect of the *lead*, they would add greatly to the security of navigation. The punishments proposed to be awarded for this the most dangerous crime of our seamen are totally absurd, and generally impracticable. One of these is two days' half allowance of provision, which any man who has the slightest knowledge of the merchant service knows cannot be carried out. For subsequent offences of the same nature fines are permitted; but so unsatisfactory is the law on this point that it can rarely be enforced.

At all our great seaports a low class of "lawyers" are ready to take up the seaman's case. The official log and wages account are rigorously examined, to ascertain if the slightest clerical error or omission can be discovered. If such are found, the case is at once dismissed by the magistrate. If the log entry, free from all objection, confirms the charge, the shipowner or master immediately receives a letter from the lawyer, to the effect that, if the wages are not paid in twenty-four hours, he, the lawyer, will carry the case into another court! Apart from "the glorious uncertainty of the law," is the fact, that if the threat be carried out, the defendant must pay his own expenses, *even if successful*. This is so well known, that in petty cases shipowners prefer to pay the unjust claim rather than entail on themselves the annoyance and expense which invariably attends such transactions. Is this a state of things creditable to the mercantile marine of this country or to the government which authorizes it?

In all great foreign seaports the conduct of the *so-called* British seaman forms a striking contrast to those of any other nation. The steady German, the grave Spaniard, or the volatile Frenchman, rarely transgress the laws of decorum and decency; while ours, after scenes of disgraceful drunkenness and quarrelling, may often be seen lying half naked in the street, or recovering from their debauch in prison. Our consuls abroad are powerless in checking this frightful state of things, even where the native powers would allow them to do so. The use of the knife even is also now becoming so frequent, that a week seldom passes without exposing a case.

All shipmasters are grateful to the authorities of the Trinity House for the care with which they light our dangerous coast, and listen to their suggestions with pleasure and satisfaction. It will be well for the best interests of the empire when *the Board of Trade* follows in their wake. We can navigate with a reasonable degree of success the most dangerous sea regardless of the aid of lights with good and sober seamen. Without them, the best conducted vessel and the most discreet captain are liable to get into very serious difficulty.

MERCATOR.

MOGADOR.—*From the Anuario de Madrid, 1865,—Concluded.*

Climate.—The temperature of Mogador is very moderate and pleasant. In summer time the N.E. winds purify the atmosphere, and neutralize the effects of evaporation from the filth collected in the streets and the skins in the tanyards which there are within the city, and preserve it constantly in a cool and wholesome condition. Fahrenheit thermometer generally ranges from 64° to 70°. In winter the wind is variable between N.W. and S.W., which alternate with the N.E. trade wind. The N.W. winds generally bring heavy showers

although of short duration, and the N.E. winds clear the sky and lower the temperature. Towards the end of December the thermometer has settled at its mean temperature, varying only perhaps from 64° to 66°, and has never been known to fall below 58°.

Illnesses.—The evil which may be considered as locally permanent is eyesoreness, or ophthalmia. This is specially common among the Jews, and is attributed by them to the effects of the granada, a fruit which abounds there of first-rate quality; but this idea is more likely the effect of prejudice, for there are other matters much more likely to occasion it; and these, in my opinion, are the surpassing whiteness of the sand of which the adjacent hills and sea shore are formed, and which surround the city on all sides. By this means the sun's rays are reflected in all their ardour, and another cause is the custom, not only of the natives (Moors), but the Jews, of plastering the whole of their houses, courts, habitations, &c., without excluding the soil. Perhaps also the heavy fog which falls at night, when the N.E. wind prevails, may contribute towards the evil.

Some cases of elephantiasis also are seen, but leaving all these matters for the attention of a competent person who is not to be found here, it will be sufficient for our purpose to know that there is no epidemic or contagious disorder in the city or its environs, and we will therefore limit our consideration to those affections which attack Europeans on their coming here.

In the course of nearly three months during which the Spanish ships staid here, ophthalmia has been the principal evil, although not of a virulent kind, and readily yielding to medical treatment. A great part of the crews were attacked by a kind of gastric fever. This had no kind of affinity to that which is common on the South coast of Africa. It was mild, and lasted only for three to five days, subsiding with an emetic or yielding to other agency, with a cathartic emetic, leaving one at the end, without the weakness and lassitude that the others do. Those attacked by this disorder which had no respect for the camara, were about one or one and a half per cent. daily.

The Winds and the best Anchorage, according as they prevail.

The N.E. breezes are cool, blowing with a uniform strength with a clear sky, in which there is not a cloud to be seen; the barometer keeps above 30 inches, and the sea which is rough breaks on the reefs at the entrance of the port with a very heavy swell. At night the wind is not so strong, and frequently becomes nearly calm, the sea also subsiding until the following day, when it gets up again with the wind. It depends much on the age of the moon whether it begins again early or not. On some days the breeze will become light and showery the barometer suddenly rising to 30.44.

In the nine months from March to December, the N.E. trades prevail, and in the remaining months the wind is variable and generally tempestuous.

East to S.E.—These winds are called the *simoun* by the natives.

At first they are light, inclining to calm. They prevail for a very few days, coming across the desert, and generally announce their approach by a considerable rise of the barometer. The atmosphere then, without being misty, has a smoky appearance; it is heavy on the system, not easy to breath, the skin cracks and peels, and makes one feel unwell and low spirited. Even the strongest animals, as the camel, feel the enervating influence of this depressing wind. It continued for the space of three days during our stay in the port, and we did not expect to get away in good health. If in the month of October this is the effect of it, who could endure it in the hottest season of the year.

This wind burns out the sand so abundant hereabouts and soon sets it in motion with a kind of ground swell. This, in fact, it transfers from place to place, most easily overcoming every obstacle to its progress, as appears by the emperor's palace, which has been covered by it in spite of a wall 40 feet high, surrounding it. With this, in fact, it makes hillocks in the form of pyramids, with a smooth coating and angles so delicate, that they might be taken for works of art. Some people consider this sand to have been gradually brought from the desert.

As this wind comes off the land, it presents an appearance not uncommon at Mogador, of a smooth calm sea. Nature, in fact, seems to have lost all animation under its effects.

South and S.W..—Those winds must be classed under two species. The first are light, inclining to calm, and are accompanied by a fog so thick, that one end of the ship can scarcely be seen from the other. In this case their approach is announced by the barometer. The second are stormy, and are also announced by the barometer falling more or less all the time they continue, according to their strength. The clouds gather heavily over the horizon, especially in the direction of the wind's course, and the scud which fills the sky moves rapidly, slight rain soon commences, and the weather soon displays its character. The wind which at first commenced moderately, gradually increases its force, blowing in tremendous squalls. If any of the frequent squalls which come down bring rain, it is an infallible sign of the weather clearing away, which it does with torrents of rain, and sometimes also with lightning. In the direction of Cape Sim the sea is not so much up as the force of the wind would lead one to expect, although sufficient to prevent a vessel exposing herself to it even with the shelter which this cape affords.

Three of these gales have I encountered in November and December. In the last, which was the worst, we had the yards pointed to the wind, top-gallant-masts housed, two anchors well laid out, with nearly 100 fathoms of cable on each, and the engines working, but the vessel laboured so heavily that the chain cables throughout their whole length were perfectly straight without the least bend in them.

It was not possible to hear any thing for the wind, nor to move on deck without holding to something. At the times of the greatest force of the wind I calculated it was 120lbs. pressure on the square yard.

The best anchorage in S.W. winds is to the East of the island, something to the North of the middle of it, and about a cable or rather more from it. At this anchorage there is 4 to 5 fathoms, with good holding sand. It is only at equinoctial springs the water falls to 3·5 or something more. This anchorage is sheltered by the reef which extends from the S.W. part of the island, and was adopted by the steamer *Ferrol*, after trying various others. Nevertheless for vessels which cannot depend on their ground tackle, neither this nor any other will be safe, and they must use caution, leaving the place on the first indications of bad weather, and getting with their storm-sail outside as they best can. But those which are not so badly off should lose no time in sending down small yards and spars from aloft, and adopt precautionary measures.

N.W. Winds.—These winds are much more to be feared than any we have yet treated on; not from their being stronger, for, on the contrary the whole height of the island is a good shelter from them, but from the heavy sea which they bring with them. This, which as far as the American coast has no kind of obstacle, with all its force, is at the very mouth of the port, which is entirely open to it. It rushes in over the reefs, and even over the low northern end of the island, with a tremendous noise; but the place is too small to contain it, and it therefore rushes over the strand above which the waves rise to a considerable height. The sight of all this is imposing enough. The sea breaks over the whole area of the port, excepting a small space under the shelter of the island, and another, smaller still, near the round tower, also sheltered by the island and the reefs of the entrance. The wild movements of the ship are then most extraordinary, and the chain cables, however well the anchors may have been placed, will always have an unequal strain, and undergo tremendous pulls which test them most severely. If they are not of first rate quality they will break one after the other, and the story of the ship may be considered as over, because then she drifts out to sea, which means also the loss of all on board.

Twice in the month of December the chains of this vessel were served this way. On both occasions the weather looked very bad to the N.W., but with slight change of the barometer, and with the wind from another quarter. The black look went off, and after two days with suspicion, the enormous sea began to get up, which to form an idea of should have been seen, and which lasted for two more days. The weather had cleared away perhaps a hundred leagues from the coast, yet notwithstanding the greatest height of one blow of the sea above its usual level was more than 20 feet.

I have questioned the captains of vessels which come for grain from the Canaries, how they manage with these storms, considering the very small resources they have for meeting them, and they have told me that on the first indications of them in the N.W., they lay out as many anchors and grapnels as they have, and have also to make small cables fast on shore, as most elastic, and taking with them their work and some rations, they go to the island and quietly wait for the end of

the storm; but in general they avoid coming to it in the season of these gales, which is in the months of January and February.

The S.W. Entrance.—We have said that with N.W. winds it is not possible to leave the anchorage by the North, nor can it be done with the South, which is sheltered from the sea by the island, and a steamer with her crew only, might attempt to force the passage in the case of her ground tackle failing her.

For this contingency I have carefully examined this Southern entrance, sounding the channel and laying down buoys, necessary as marks for navigating it.*

The coast between Mogador and Cape Sim, consists of a large collection of sandhills of uniform appearance, and only interrupted by the buildings to which we have alluded, and by the summits of other hills, covered with a slight vegetation which overlies the sand.

A vessel from sea, in order to take the southern entrance, must bring the Portuguese fort on with the summit of the second remarkable hill, and keep it so until she opens the castle at the North end of the island, that is, the ruined castle or fort on the northern farallon, when she will have $6\frac{1}{2}$ fathoms water, sandy bottom. She must then steer for the round black mountain (4) which will be seen over the inner entrance of the town until she loses sight of the hummock behind the island, and has the Portuguese fort on with the third remarkable hill, and will be in $3\frac{1}{2}$ fathoms of water. From here she must steer in the direction of the square tower (o), at the gate of the Marina, and which in one with Cape Sim leads to the anchorage, where there will be found above 3 fathoms water.

To leave it on the contrary, the vessel must lay her head for Cape Sim, bringing the square tower astern until the hummock is seen outside of the islet, and then the opposite courses must be steered to those with which she entered.

Soundings.—These have all been reduced to low water, and therefore for high water depth 15 feet must be added to each of them.

Places where Landing might be effected.—In places like Mogador it is necessary to give them special examination with this object. A vessel without her anchors, in one of the gales to which we have alluded will be not only difficult to save, but there will also be still more difficulty to give her crew a chance of escape, beset as she will be by breakers, and therefore this is a point that should be duly considered.

There are two places in the port where we have said there is some shelter, and where the sea does not break. The first has a clean sandy beach, which is nearly North and South with the circular battery (N); it is easy to gain, merely running to it under storm sail or the jib being always to leeward, either from S.W. or N.W., but from the former there is a heavy sea; but this is not the only drawback. Supposing

* Views are given with the plan for this purpose, but the points of the land have no names.

that the vessel should be stranded and remain some time without breaking up, there would be no chance of saving even a single bolt of her, for she would be speedily sacked by the Moors, and treated as they do every other vessel in the same condition.

The second place is exempt from both these objections. It is a little strip of beach on the East of the island, precisely under the tower of the little mosque. It has a gentle incline, and is the most sheltered position of the whole port with any wind, so that the vessel stranded and secured by the adjacent rocks, there might be a chance of saving her, by hauling her off on the flood when there is a good tide although it might have been necessary to cut away the masts for her safety. If she cannot be got afloat, the whole of her cargo can always be landed on the island, and get them into some building, safe from the pilfering of the Moors. To these favourable conditions there is the objection that each of these beaches is to windward with both those winds. Nevertheless it is so small, the distance of it from the anchorage (only one cable) that it may be supposed a steamer would gain it.

Tanks in the Island of Mogador.—In each of the forts of the island there is a tank which collect the waters of the esplanade constructed on purpose with the necessary inclination. These tanks are subterranean, are covered, and have only a small trap door, from which to get the water, the reason why I did not discover them in my first visit. In the middle of the island there are three other tanks constructed in the same manner, but of much greater capacity; they are surrounded by a handsome esplanade of cement, which collects the waters and leads to their reservoirs.

The Neighbourhood of Mogador and the Road of Morocco.—The line of hills of moving sand which runs parallel to the shore, extends from Cape Sim to the northward, as far as the eye reaches, without more interruption than that it leaves a place for the small stream or brook of Elhed to pass. Leaving the plaza in that direction, at the distance of about a gun shot, stands a square white building covered with an Arabic cupola. This is the sepulchre of a very popular saint named Sidi-Mogodol. About two miles further on the little town of Derbit is seen on a small plain. The town has a wretched appearance, and a little beyond stands the Emperor's palace.

This is a square building with marble porticoes and handsome rooms in oriental style, ornamented with mosaics and arabesques. It is surrounded by a wall about 40 feet high, with four pavillions at the angles, the buildings between them being considerable, and of much area; but the dwellings and their ornaments are much deteriorated. However the building which has been very handsome although abandoned and invaded by sand, stands very well, and as much from the solidity and strength of the building as from its position, which commands the roadstead of Morocco, would, in the hands of a victorious party, make a very good advanced blockhouse, which would easily contain about two hundred men.

At the foot of the little town of Derbit, the Gorhed opens its way between the sandhills, about two miles wide, which, to find the best footing for a horse, must be waded from side to side, and he will sometimes be up to his knees in the sand. Here the river collects its small stream between two rocky heights of clay, but on which there is not the least sign of vegetation. Always sharp and perpendicular in some places and extending in others so as to leave only room for a horse to pass, and following the capricious windings of the river, they form a series of defiles, or rather a continual defile, the ground of which is of rugged broken stone, on which the cavalry horses would find fatigue and trouble. The noise of their steps is reverberated, and the faintness of the light, and wild aspect of the road produce that vague sensation which one experiences in traversing a forest, or in crossing a dangerous torrent.

Eight to nine miles of this must be passed before the character of the ground changes to inaccessible cliffs with shrubs here and there. Here in an elbow of the rocks is a house in ruin by the side of a brook which forms a little fall. The view here is more extended; the horizon may be seen on which are some palm trees, and beyond them the highest steeps of the Atlas mountains, with that blue tint which the atmosphere lends to distant objects.

Beyond this position I did not penetrate, and must here close my description; but it is impossible not to admire the means of defence which nature has supplied here against an invader. If our troops had had to make this road, and had found among these people the same decision of character as among the kabiles of Ceuta and Tetuan, the current of the river would oft have been stained with blood before they could have gained the position I have attained.

A handful of brave men could convert this defile into another Thermopilas, and arrest the march of an army, although it could never move with safety, without previously having reconnoitred the means of capturing the heights in order to advance the forces to cover their flanks.

The position is most important, because it defends the only available road from one of the most important cities of the empire; the road to Marocco distant but five days journey from Mogador.

If the victorious general limits himself to the possession of this place, the difficulties of the defile are in his favour, being the only point from which forces could come to attack him; but this is a superfluous resource. Without reckoning on more than isolation of the citadel and free communication with the sea, he may be assured that an army of three thousand men might be resisted as Ceuta did formerly for thirty years.

Mogador, Dec. 1860.

VENICE.—*Notes of a Voyager.*

(Continued from page 356.)

The following picture of Venice, as it was but a few days ago under foreign rule, forms a strong contrast with its present emancipated condition. We find it given in a work alluded to in our September number from the pen of Mr. Howell.

The Place of St. Mark is the heart of Venice, and from this beats her life in every direction through an intricate system of streets and canals, that bring it back again to the same centre. So if the slightest uneasiness had attended the frequency with which I got lost in the city at first, there would always have been this comfort, that the place was very small in actual extent, and if I continued walking I must reach the Piazza sooner or later. There is always a crowd tending to and from it, and you have but to take this tide and be drifted to St. Mark's or the Rialto Bridge, whence it is directly accessible.

Of all the open places in the city that before the Church of St. Mark alone bears the name of Piazza, and the rest are called merely *ciampi*, or fields. But if the company of the noblest architecture can give honour, the Piazza San Marco merits this distinction, not in Venice only, but in the whole world; for I fancy that no other place in the world is set in such goodly bounds. Its westward length is terminated by the Imperial Palace; its lateral borders on either hand are formed by lines of palace called New Procuratie on the right, and Old Procuratie on the left (in Republican days the palaces of the *Procurati di San Marco*), and the Church of San Mark fills up almost its whole width upon the East, leaving space enough, however, for a glimpse of the Gothic perfection of the Ducal Palace. The Place then opens southward with the name of Piazzetta, between the eastern façade of the Ducal Palace and the classic front of the Liburia Vecchia, and expands and ends at last on the Mole, where stand the pillars of St. Mark and St. Theodore; and then this mole, passing the southern façade of the Doge's Palace, stretches away to the public gardens at the eastern extremity of the city, over half a score of bridges, between lines of houses and shipping, stone and wooden walls, in the long crescent-shaped quay, called the Riva dei Schiavoni. Looking northward up the Piazzetta from the Mole, the vision traverses the eastern breadth of the piazza and rests upon the clock of the tower, gleaming with blue and gold, on which the bronze giants beat the hours; or it climbs the great mass of the Campanile San Marco, standing apart from the church at the corner of the New Procuratie, and rising four hundred feet towards the sky—the sky where the Venetian might well place his heaven, as the Moors bounded Paradise in the celestial expanse that roofed Granada.

My first lodging in Venice was but a step out of the Piazza, and this vicinity brought me into early acquaintance with its beauty. But I have never yet during three years passed through it in my daily walks without feeling as freshly as at first the greatness of its beauty.

The church which the mighty campanile and the lofty height of the palace lines made to look low is in no wise humbled by the contrast; but is like a queen enthroned in upright reverence. The religious sentiment is deeply appealed to, I think, in the interior of St. Mark's; but if the interior is Heaven's, its exterior, like a good man's daily life, is earth's; and it is this winning loveliness of earth that first attracts you to it, and when you emerge from its portals the Piazza before you opens with such sunny length and breadth of light, set round with such exquisite architecture, that it makes you glad to be living in this world. Before you expands the Square, peopled with its various life; on your left, between the pillars of the Piazzetta, swims the blue lagoon, and overhead climb the arches one above another in the excesses of fantastic grace.

Whatever could please, the Venetian seems to have been brought hither and made part of his piazza, that it might remain for ever the city's supreme grace; and so there are public gardens and several pleasant walks in the city. The great resort in summer and winter, by day and by night, is the Piazza San Marco. Its ground level under the Procuratic is belted with a glittering line of shops and caffès, the most brilliant and tasteful in the world; and the arcades that pass round three sides of the Square are always filled with loungers and shoppers, even when there is music by the Austrian bands; for, as we have seen, the purest patriot may then walk under the Procuratic without stain to his principles, which would be hopelessly blackened if he set foot in the Piazza. The absence of dust and noisy hoofs and wheels tempt social life out of doors in Venice more than in any other Italian city, though the tendency to this sort of expansion is common throughout Italy.

Beginning with the warm days of early May, and continuing almost till the end of October, or till the villeggiatura interrupt it in September, all Venice goes by an universal impulse of *dolce far niente*, and sit gossiping at the doors of the innumerable caffès on the *Riva dei Schiavoni* in the Piazza San Marco, and in the different campi in all parts of the city. But of course the most brilliant scene of this kind is in St. Mark's-square, which has a night time glory indescribable, even from the light of uncounted lamps upon its architectural groups. The superb imperial palace,—the sculptured, arcaded, and pillared Procuratia,—the Byzantine magic and splendour of the church,—will it all be there when you come again to-morrow night? The unfathomable Heaven above seems part of the place, for I think it is never so tenderly blue over any other spot of earth. And when the sky is blurred with clouds shall not the piazza vanish with the azure? People, I say, come to drink coffee and eat ices in summer before the caffès in St. Mark's-square, and then what with the promenades in the arcade and in the square, the music, the sound of feet and the hum of voices, unbroken by the ruder uproar of cities where there are horses and wheels—the effect is that of a large evening party, and in this aspect, the square is like a vast drawing-room.

I liked well to see that strange life which even the stout, dead-in-

earnest Bohemian musician piping in the centre of the piazza, could not altogether substantialize, and which constantly took immateriality from the loveliness of its environments. In the winter the scene was the most purely Venetian, and in my first winter when I had abandoned all thought of churches till spring, I settled down to steady habits of idleness and coffee, and contemplated the life of the piazza.

By all odds, the loungers at Florian's were the most interesting, because, leaving out the foreigners who are to be seen at all seasons, they were the most various. Though people of all shades of politics met at Florian's, there were shades of division also, and they did not mingle. The Italians carefully assorted themselves in a room furnished with green velvet, and the Austrianti frequented a red velvet room. They were curious to look at, these tranquil, indolent, Italian loafers, and I had an uncommon relish for them. They seldom spoke together, and when they did speak, they burst from silence into tumultuous controversy, and then lapsed again into perfect silence. The elder among them sat with their hands folded carefully on the heads of their sticks, gazing upon the ground, or else buried themselves in the perusal of the French journals. The younger stood a good deal about the door ways and now and then passed a gentle jest with the elegant waiters in black coats and white cravats, who hurried to and fro with the orders, and called them out in strident tones to the accountant at his little table; or sometimes these young idlers made a journey to the room devoted to ladies, and forbidden to smokers, looked long and deliberately in upon its loveliness, and then returned to the bosom of their taciturn companions. By chance I found them playing chess; but very rarely. They were well dressed, handsome men, with beards carefully cut, brilliant hats and boots, and conspicuously clean linen. I used to wonder who they were, to what order of society they belonged, and whether they, like my worthless self, had never any thing else, but lounging at Florian's, to do; but I really know none of these things to this day. Some men in Venice spend their noble, useful lives in this way, and it was the proud reply of a Venetian father, when asked of what profession his son was, "*E in Piazza!*" That was, he bore a cane, wore light gloves, and stared from Florian's windows at the ladies who went by.

At the *caffè* of the Quadri, immediately across the square, there was a scene of equal hopefulness; but there all was glitter of uniforms and the idling was carried on with a great noise of conversation in Austrian-German. Heaven knows what it was all about, but I presume they spoke on topics of mutual improvement, calculated to advance the interests of self government and mankind. These officers were very comely, intelligent looking people, with the most good natured faces. They constantly came and went restlessly, sitting down and knocking their steel scabbards against the tables, or rising and straddling off with their long swords kicking against their legs. They are the most stylish soldiers in the world, and one has no notion

how ill they can dress when left to themselves, till one sees them in civil clothes.

Further up towards the *Fabrica Nuova* (as the imperial palace is called), under the *Procuratia Vecchio* is the *Caffè Specchi*, frequented only by young Italians, of an order less wealthy than those who go to *Florian's*. Across from this *caffè* is that of the Emperor of Austria, resorted to chiefly by sous-officiers, and civil employes of lower grade. You know the latter at a glance, by their beard, which in Venice is an index to every man's politics; no Austrian wears the imperial, no Italianissimo shaves it. Next is the *Caffè Sutil*, rather Austrian, and frequented by Italian codini or old fogeys in politics: grey old fellows who caress their sticks with more constant zeal than even the elders at *Florian's*. Quite at the other end of the *Procuratie Nuove* is the *Caffè* of the Greeks, a nation which I have commonly seen represented there by two or three Albanians, with an Albanian boy, who being dressed exactly like his father, curiously impressed me as if he were the young of some Oriental animal—say a boy-elephant, or infant camel.

I hope that the reader adds to this sketch, even in the winter time, occasional tourists under the *Procuratie*, at the *caffè*, and in the shops where the Venetian shopkeepers are devouring them with the keenness of an appetite unsatiated by the hordes of summer visitors. I hope that the reader also groups me fishermen, gondoliers, beggars, and loutish boys about the base of *St. Mark's*, and at the feet of the three flag-staffs before the church; that he passes me a slatternly woman and a frowsy girl or two through the piazza occasionally, and that he calls down the flocks of pigeons hovering near. I fancy the latter half ashamed to show themselves, as being aware that they are a great humbug, and unrightfully in the guide books.

Meantime, while I sit at *Florian's*, sharing and studying the universal worthlessness about me, the brief winter passes, and the spring of the South—so unlike the ardent season of the North, where it burns full summer before the snows are dried upon the fields—descends upon the city and the sea. But except in the little gardens of the palaces, and where here and there a fig tree lifts its head to peer over a lofty stone wall, the spring finds no response of swelling bud and unfolding leaf, and it is human nature alone which welcomes it. Perhaps it is for this reason the welcome is more visible in Venice than elsewhere, and that here, where the effect of the season is narrowed and limited to men's hearts, the joy it brings is all the keener and deeper. It is certain at least that the rapture is more demonstrative. The city, at all times voiceful, seems to burst into song with the advent of those golden days and silver (y) nights. Bands of young men go singing through the moonlight (lit) streets, and the Grand Canal re-echoes the music of the parties of young girls as they drift in the scarcely moving barcas, and sing the glories of the lagoons and the loves of the fishermen and gondoliers. In the public gardens they walk and sing, and wandering minstrels come forth before the *caffès*;

and it is hard to get beyond the tinkling of guitars and the scraping of fiddles. As by one impulse the city has put off its winter humour with its winter dress; and as Venice in winter is the dreariest and gloomiest place in the world, so in spring it is the fullest of joy and light. There is a pleasant bustle in the streets, a ceaseless clatter of feet over the stones of the campi, and a constant movement of boats on the canals.

We say, in a cheap and careless way, the Southern people have no *homes*. But this is true only in a restricted sense; for the Italian, and Venetian especially, makes the whole city his home in pleasant weather. No one remains under a roof who can help it, and now, as I said before, the fascinating out-door life begins. All day long the people sit and drink coffee and eat ices and gossip together before the caffès, and the soft midnight sees the same diligent idlers in their places. The promenade is at all seasons the favourite Italian amusement. It has its rigidly fixed hours, and its limits are also fixed. But now in spring even the promenade is a little lawless, and the crowds upon the Riva sometimes walk as far as the public gardens, and throng all the wider avenues and the piazza, while young Venice comes to take the sun at St. Mark's in the arms of its high-breasted nurses—mighty countrywomen, who, in their rich costumes, their dangling chains, and head-dresses of gold and silver baubles, stride through the square with the high free stepping movement of blood horses, and look the women of some older race of barbaric vigour and splendour, which, but for them, had passed away from our puny dull-clad times.

“E la stagion che ognun s'innamora.”

And now young girls steal to their balconies and linger there for hours, subtly conscious of the giovanotti sauntering to and fro, and looking up at them from beneath. Now, in the shady little courts, the Venetian housewives, who must perforce remain indoors, put out their heads and gossip from window to window, while the pretty *bigolanti*, drawing the water from the wells below, chatter and laugh at their work. Every street down which you look is likewise vocal with gossip; and if the picturesque projection of balconies, shutters, and chimneys, of which the vista is full, hide the heads of the gossipers, be sure there is a face looking out of every window for all that, and the social, expansive presence of the season is felt there.

The poor, whose sole luxury the summer is, lavish the spring upon themselves unsparingly. They come forth from their dark dens in crumbling palaces and damp basements, and live in the sunlight and the welcome air. They work, they eat, they sleep out of doors, and no domestic mystery is concealed. Mothers of families sit about their doors and spin, or walk volubly up and down with other slatternly *matrons*, armed with spindle and distaff; while their raven-haired daughters, lounging near the threshold, chase the nimble *pulce* or hunt the covert *pidocchio* amid the tangles of the children's locks!

Within doors shines the bare bald head of the grandmother, who never ceases talking for an instant.

Before the winter passed I had changed my habitation from rooms near the Piazza to quarters on the Campo San Bartolomeo, through which the busiest street in Venice passes, from St. Mark's to the Rialto Bridge. It is one of the smallest campos (? campi) of the city, and the very noisiest, and there the spring came with intolerable uproar. I had taken my rooms early in March, when the tumult under my windows amounted only to a cheerful stir, and made company for me; but when the winter broke and the windows were opened, I found that I had too much society.

Each campo in Venice is a little city, self-contained and independent. Each has its church, of which it was in the earliest times the burial-ground; and each within its limits compasses an apothecary's shop, a mercer's and draper's shop, a blacksmith's and shoemaker's shop, a caffè, more or less brilliant, a greengrocer's and fruiterer's, a family grocery,—nay, there is also a second-hand merchant's shop, where you buy and sell every kind of worn-out thing at the lowest rates. Of course there is a coppersmith's and a watchmaker's, and pretty certainly a wood carver's and gilder's; while without a barber's shop no campo could preserve its integrity or inform itself of the social and political news of the day. In addition to all these elements of bustle and disturbance, San Bartolomeo swarmed with the traffic and rang with the bargains of the Rialto Market.

In Venice the small dealer makes up in boastful clamour for the absence of quantity and assortment in his wares, and it often happens that an almost imperceptible boy, with a card of shirt-buttons and a paper of hair-pins, is much worse than the anvil chorus with the real anvils. Fishermen with baskets of fish upon their heads; pedlars with trays of housewife wares; louts who dragged baskets of lemons and oranges back and forth by long cords; men who sold water by the glass; charlatans who advertise cement for mending broken dishes and drops for the cure of toothache; jugglers who spread their carpets and arranged their temples of magic on the ground; organists who ground their organs: and poets of the people, who brought out new songs and sang and sold them to the crowd;—these were the children of confusion whom the pleasant sun and friendly air woke to frantic and interminable uproar in San Bartolomeo.

Yet there was a charm about all this at first, and I spent much time in the study of the vociferous life under my windows, trying to make out the meaning of the different cries and to trace them back to their sources. There was one which puzzled me for a long time,—a sharp pealing cry that ended in a wail of angry despair, and rising high above all the rest, impressed the spirit, like the cry of that bird in the tropic forests, the same which the terrified Spaniards call the *alma perdida*. After many weeks listening and trembling, I found that it proceeded from a wretched sun-burnt girl, who carried about some dozens of knotty pears, and whose hair hung dishevelled about her eyes, blood-shot with the strain of incessant shriek.

In San Bartolomeo, as in other campos, the buildings are palaces above and shops below. The ground floor is devoted to the small commerce of various kinds already mentioned; the first story above is occupied by tradesmen's families; and in the third and fourth floors are the *appartamento signorila*. From the balconies of these stories hung the cages of innumerable birds—finches, canaries, blackbirds, and savage parrots—which sang and screamed with delight in the noise that rose from the crowd. All the human life, therefore, which the spring drew to the casements was perceptible only in dumb show. One of the palaces opposite was occupied as an hotel, and faces continually appeared at the windows. By all odds the most interesting figure was that of the stout servant girl, a contadina, dressed in a white knitted jacket, a crimson neckkerchief, and a bright coloured gown, and wearing long dangling earrings of yellowest gold. For hours this idle maiden balanced herself half over the balcony rail in perusal of the people under her; and I suspect made love at that distance and in that constrained position to some one in the crowd. On another balcony a lady sat and knitted with crimson yarn, and at the balcony of still another house a damsel now looked out upon the campo, and now gave a glance into the room in the evident direction of a mirror. Venetian neighbours have the amiable custom of studying one another's features through opera-glasses; but I could not persuade myself to use this means of learning the mirror's response to the damsel's constant "fair or not?" being a believer in every woman's right to look well a little way off. I shunned whatever trifling temptation there was in the case, and turned again to the campo beneath; to the placid, placid dandies about the door of the caffè; to the tide of passers-by, the Merceria, the smooth-shaven Venetians of other days, and the bearded Venetians of these; the dark-eyed white-faced Venetian girls, hooped in cruel disproportion to the narrow streets, but richly clad and moving with southern grace; the files of heavily-burdened soldiers; the little policemen loitering lazily about, with their swords at their sides and in their spotless Austrian uniforms.

As the spring advances in Venice, and the heat increases, the expansive delight which hails its coming passes into a tranquil humour, as if the joy of the beautiful season had sunk too deeply into the city's heart for utterance. I too felt this longing for quiet, and as San Bartolomeo continued untouched by it, and all day roared and thundered under my windows, and all night long gave itself up to sleepless giovanotti, who there melodiously bayed the moon in chorus, I was obliged to abandon San Bartolomeo and seek calmer quarters, where I might enjoy the last luxurious sensations of the springtime in peace.

Now, with the city's lapse into this tranquil humour the promenades cease. The facchino gives all his leisure to sleeping in the sun; and in the mellow afternoons there is scarcely a square of about six feet on the Riva dei Schiavoni which does not bear its brown-cloaked contadino basking face downwards in the warmth. The broad steps of the bridges are by rights the berths of the beggars; the sailors and fishermen slumber in their boats; and the gondoliers, if

they do not sleep, are yet placated by the season, and forbear to quarrel, and only break into brief clamours at the sight of inaccessible Inglesi passing near them under the guard of valets-de-place. Even the play of the children ceases, except in the public gardens, where the children of the poor have indolent games and sport as noiselessly as the lizards, that slide from shadow to shadow and glitter in the sun asleep. This vernal silence of the city possesses you, the stranger in it, not with sadness, not with melancholy, but with a deep sense of the sweetness of doing nothing, and an indifference to all purposes and chances. If ever you cared to have your name on men's tongues, behold that old yearning for applause is dead. Praise would strike like pain through this delicious calm. And blame? It is a wild and frantic thing to dare it by any effort. Repose takes you to her inmost heart, and you learn her secrets,—arcana unintelligible to you in the new-world life of bustle and struggle. Old lines of lazy rhyme win new colour and meaning. The mystical indolent poems, whose music charmed away all will to understand them, are revealed now without your motion. Now at last you know *why*

“It was an Abyssinian maid”

who played upon the dulcimer. And Xanadee, it was the land in which you were born.

Through rifts of flying fancies you behold the old blue sky of childhood where Heaven used to be; and Titian's child-virgin no longer ascends the temple steps in Jerusalem to meet the high priest, but, shining in that halo with which the master's hand has clothed her, mounts the stairs that rose in De Quincey's trance from the window of the cathedral on mighty organ tones into unfathomable depths of glory and light.

The slumbrous bells murmur to each other in the lagoons; the white sail faints into the white distance; the gondola slide athwart the sheeted silver of the bay; the blind beggar, who seemed sleepless as fate, dozes at his post.

(To be continued.)

TABLE BAY BREAKWATER.

Some very questionable information has been sent us about the Breakwater forming in Table Bay, Cape of Good Hope. Pile work for a pier in that part of the world cannot be expected to withstand the worm, and we are surprised such a resort should have been admitted. However the Cape Government is old enough to take care of itself, and prevent their pier from being mutilated; and if it looks to *permanent* advantages in such an important work as the protection of a harbour for shipping, they must use *permanent* materials

to secure it, or content themselves to let it go by with the stream of time into early imbecility, while other harbours of the colony are prospering and securing those advantages which follow good works, but which to them will be lost.

We read that the Legislature has passed a vote of another £20,000 towards the prosecution of the harbour works, in spite of the opposition of one or two members, Messrs. Wathen and Robinson especially, who demand an inquiry as to the state of the works and the suitability of the plan. The burgesses of Durban are astir in this matter once more, and in two days 196 signatures were appended to a petition against the Bill passing the third reading. It has passed, however, and now a memorial to the Governor has been forwarded, with a copy of the petition to the Council, praying him to accept it as addressed to himself. Yesterday a party of burgesses inspected the works for themselves. It may be very well for honourable members to throw a doubt upon the genuineness of specimens of *worm-eaten timber*, brought from the breakwater, and laid on their table; but at least they should not shut their eyes to conviction. Let them, at least, not refuse inquiry; and if they doubt the genuineness of the specimens before them, either inspect for themselves or let a commission do it for them.

They would then find that the timbers of the piers, both north and south, are in scores of cases pierced and perforated till they resemble sponge, and crumble in the hand. Failure is written on the face of the scheme in characters so plain and unmistakable, that only wilful blindness and perverse obstinacy can refuse to see it. And the presumption of the self-constituted engineer, while professing to carry out Captain Vetch's plan, is such that they now, on the suggestion of some unknown and irresponsible projector, propose to alter it in three important particulars, all integral and essential parts of his scheme. First, they do away with the southern breakwater altogether. Secondly, they propose to drive piles instead of putting down compartments framed together, and filled up at once with stone. And, thirdly, the leading idea of Vetch's scheme, the carrying out the head of the two piers into thirty feet water, is also abandoned, and the one pier will terminate in twenty or twenty-two feet water. Yet with all these stupendous changes in Vetch's stupendous plan, the Colonial Secretary, is asking for another £20,000, in the most matter of course way, says, "there is nothing to explain!" Some of the honourable members propose to do away with the practice of reading prayers before their sittings, or at least to let it be done by proxy. A bitter wag thinks they begin to find themselves past praying for.

The *Mercury* of Saturday contains the testimony from a mechanic of the highest respectability as to the state in which he found Vetch's breakwater, and it more than amply bears out the statement of the memorial on the subject, and fully justifies a remark made by Mr. Wathen in the Council, when opposing the vote of £20,000 the other day, for carrying on the works. The honourable gentleman thought accommodation for lunatics was far more urgently required!

HOMEWARD BOUND.

PART I.

(Continued from page 540.)

'Tis under cover of the "stilly" night,
 The turtle seeks the shore, and out of sight,
 Conceals her eggs, beneath the sand to wait
 The warmth of circling sun to incubate:—
 And thence the young, leaving the shell it breaks,
 To its watery element naturally takes;
 Growth to attain, and often falls the prey
 Of feather'd foe, or man, when in his way:
 'Tis thus, when from the strand it can't retreat,
 Too far the sea, 'tis caught, its end to meet!
 The turtle's turn'd, on its broad back it lies,
 Unhappy victim, yet a lawful prize!
 As produce of the island 'tis the chief,
 And technically term'd "Ascension beef!"*

A lawful prize 'tis true, and doom'd to die,
 The common lot of all! yet cruelty
 Which in other climes they undergo,
 These of Ascension hap'ly do not know!

While in the sun, as quietly they sleep
 On the smooth surface of the silent deep;
 The wily Indian marks one on the wave,
 Hurls his barb'd spear that takes the curve he gave,
 And falls precisely on the turtle's back,
 Which thus impaled quick downward leaves his track;
 Alas, too late; for now the fatal dart,
 With line attach'd, from which it cannot part,—
 Brings back the turtle, prisoner to his foe,
 Writhing in agonies from the depths below!

Nor is this all, others are sleeping caught,
 But to endure cruelties which are wrought;
 That make one shudder, such things should be
 Devised by inhuman ingenuity!
 The hawkbill turtle is the favor'd kind,
 That yields a shell with beauteous marks combin'd.
 Observe how this is robb'd, the cruel plan
 Of heartless plunderer in the shape of man:
 An Indian holds the turtle for the rack,—
 Another spreads dry grass upon his back,

* Some inaccuracies appearing in the last page of the lines, we have repeated some for our correspondent *Nemo*.

To which a flame's applied, the living shell
 Sears up with heat, at all the joints too well !
 Then a large knife the heated shell will rive,
 And the poor animal's thus flayed alive !
 Next, to his native element he's cast,
 A helpless prey for hungry shark's repast !
 Or if such end he happens to escape,
 And lives in pain himself afresh to drape ;
 His shell, instead of thirteen pieces made,
 (The usual number which Dame Nature laid,)
 Now single comes, in one continuous sheet,
 For future shield, his enemies to meet.
 Poor wretch, he's robb'd of nature's best attire,
 Ruthlessly plunder'd both with knife and fire :
 His second coat not like the first emboss'd,
 Frail substance is for armour he has lost :
 Yet mark the care with which the creature's broil'd,
 Not too much heat in case his shell be spoil'd !
 Of market price, his masters should be foil'd,
 Nor should the knife too early to divide
 The shell from seething flesh be yet applied !
 Until by heat it has been well prepared,
 And starting, leaves the creature's back half bared !
 What refinement of cruelty is here !
 And yet 'tis done relentless year by year :
 With tortoise-shell the market to supply ;
 The hawksbill turtle's doubly doomed to die.
 Alas ! alas ! how little do we know,
 The tortures which these creatures undergo !
 We know full well, the shell is highly prized ;
 Yet not how much the turtle's victimised !
 Nor that unhappily to yield that shell,
 Could he but speak, what horrors he could tell !

Treating on Ascension, the muse then turns
 To a phenomenon, from which one learns
 Another lesson in those wondrous ways,
 Which all contribute to the Maker's praise ;—
 That great Almighty, by whose sacred will
 All things were made, his pleasure to fulfill ;
 Who made the sea, first having made the land,
 The waters of the deep were by his command
 Divided by the firmament He nam'd
 Heav'n, and all our wondrous gifts were fram'd ;—
 The atmosphere, its circulation too,
 Then the Trade winds, their proper course pursue :
 Th' effect of these, the water is to keep
 To leeward, on the West side of the deep

Atlantic, where, heap'd up, it mostly throngs
 In higher level, than to it belongs;—
 Until those winds abate, and then such wrongs
 Of level, are adjusted, by the power
 Of gravitation, which at the hour
 Of calm, allows the waters to return,
 As nature's clear observer may discern!

The weather at the isle is calm and fine;
 The sea unruffled, smooth as valentine
 E'er ran; when sudden distant there is seen
 A swelling wave, rising as if to screen
 Th' horizon from the view, and wave on wave
 Rolls on towards the isle, its shores to lave:
 And slow they seem at first to move, yet soon
 The outer reefs assail'd, receive the boon
 Of overpowering seas; and gliding on,
 These, with impetuous fury, burst upon
 The island's shelving shore, and then recoil
 As if fresh vigour to obtain; they boil
 Higher yet higher; onward still they roll
 In towering waves, as if to drown the whole
 Face of the isle, in grandeur most sublime
 To note, yet awful to behold;—each time
 In violence growing, as pile on pile,
 (With unrelenting fury all the while,)
 Onward yet onward, rushing to the shore
 They threaten to submerge for evermore!

And now, 'tis said, "the rollers are set in,"
 Amidst the rush, confusion, and the din
 Of their own noise; the beach is mantl'd o'er
 With foam of waves, which, whitening the shore,
 Contribute now their loud and deaf'ning roar:
 The mighty waters sweep o'er all the plain,
 The houses feel the fury of the main;—
 Of lava built, 'tis true, yet large and strong,
 Adapted to resist that fury long:
 How awfully sublime! how grand the scene;
 The majesty of nature reigns supreme!
 The beauteous picture which the isle presents
 Has features now, the foreground represents,
 Magnificently grand: the distance, too,
 Has those besides, which nothing can outdo:
 They're nature's own indeed, for all the while,
 A beauteous rainbow's form'd about the isle;
 Calm, placid, and magnificent it shines
 In colours pure, and radiant with the signs

Of mercy, glorious and divine the symbol true;
 Of tints supreme, in ever varying hue!
 And thus 'tis form'd:—the crest of every wave
 As it comes tow'ring from the sea to brave
 Th' unyielding shore, in one continuous ridge,—
 As if to form, for Neptune's car, a bridge,
 Is crested with a graceful foam of spray,—
 Which, lighted by the glorious orb of day,
 And rising clear above the sea, there forms
 The well known bow complete, without the storms
 Which oft precede it! Such the routine
 Of the phenomena that here are seen
 The first three months of each successive year,
 When quiet reigns in sea and atmosphere.

So great is the reaction of the sea,
 Some not far distant hurricane might be
 Suppos'd th' exciting cause; as it would sweep
 Th' impressive bosom of the briny deep;
 Yet, at this season they do not prevail,
 Nor are they known, nor any western gale,
 To occasion so much rise as twenty feet
 Above the usual level, and to treat
 The George Town jetty with respect so small,
 As to wash it away, with vane and all!
 Whatever might be stated as their cause,
 'Tis evident they follow certain laws;—
 Recurring at fixed periods of the year,
 At other islands too, as well as here.

Another purpose of th' Almighty's will,
 At various isles these "rollers" do fulfill
 As they rush on in their impetuous course
 They drown large tracts of land, and are the source
 Whence salt is form'd, and which the whaler takes.
 The water thus thrown up collects in lakes,
 Shallow, yet wide, as by the sea 'tis left
 Within the bound'ry beach, a modest theft
 From ocean;—yet a debt that is repaid
 With interest good by nature, soon as made
 Fit for man's use:—a process this perform'd
 When with Dame Nature's laws it has conform'd.
 The sea has done its work, the waves subside,
 The waters left spread o'er an area wide
 Of some square miles,—fit for the scorching sun
 To pour his heat thereon: the work begun
 Is thus continued day by day till done,—
 The water's vanish'd, and the salt is won.

Then comes the rake, and soon the salt in heaps
 Is seen arranged like haycocks, and thus keeps
 Till wanted by some passing ship for use
 On whaling expedition running loose.

Strange picture, too, these mounds of salt present,
 To unaccustom'd eyes they seem as lent
 By winter for her sister summer's play ;
 Who decks her fields with salt hills in a way
 Some child would do to make them fine and gay ;
 Resembling snow upon a summer's day :
 That summer, too, within the Torrid Zone,
 Adds to the contrast in th' apparent loan ;
 Still there they are, arrang'd in varied rows,
 Like summer's boast of sister winter's snows.

That freak of nature has its dangers too
 To finny tribes ; for here and there a few
 Caught by the mighty roller, now o'ergrown
 High o'er the beach, and in the lake they're thrown ;
 And thence are doom'd their span of life to close,
 Brief as it is, for fishes have their woes !
 That lake is spacious, still, and undisturb'd ;
 There they may wander where they like uncurb'd
 A brief bright interval, for soon they find
 Evils distressing, fatal, and combin'd :
 There is no depth to screen them from the sun,
 Whose fervid heat, while on his daily run
 The treach'rous fluid drinks, in which they roam,
 And leaves them lifeless midst the surface foam :
 The brine remains, gradually to become
 More acrid still, and to them wearisome ;
 They yield exhausted, in malignant hour,
 Die on its surface, victims of its power ;
 Yes, here evaporation does its work,
 Ruthless of those effects, where death may lurk :
 Thus nature deals : her laws she must fulfill,
 For universal good or partial ill !

Long have we lingered on Ascension's shore,
 Nor yet exhausted all her varied lore,—
 Where nature works without a studied rule,
 And would by man be thought quite out of school.
 " Farewell, Ascension, yet how sweet at times
 To seek thy milder * * * or more wond'rous climes ;
 Now on thy beach where crystals gem the sand,
 Laughing in brightness at the soft wave's kiss ;
 Now on the murky craggy cliff we stand

Pois'd o'er the ocean,—What a scene is this !
 Yet high above us in basaltic pride,
 Thy rock, oh Scylla ! Whilst a little bay
 Is spread before us, where the rippling tide,
 In gentle murmur, sports in feather'd spray :
 On either side from out the waters rise,
 As if in measur'd distance wrought by rule,
 A seagirt column pointing to the skies
 In monumental whiteness. Oh, the school
 Of Nature shames the proudest works of art,
 Graving its beauties on the coldest heart.
 Nor can the Muse omit the important part
 For sickly crews she plays : This let them say,
 Who knew the slave trade in its gaudiest day."

Again our ship has spread her wayworn sail,
 Again we bound before the fav'ring gale,
 Britannia's storm swept islands are once more
 Before us, and when gain'd our voyage o'er :
 Long absence then will kindest hearts repay,
 With welcome they will greet our meeting day ;
 For tedious years of absence they will make,
 Happiness our own and our own joy partake.

'Tis only those who pains of absence know,
 Enjoy delights that meeting can bestow :
 And yet, how great the distance that divides
 Them from us, o'er a stormy sea besides ;—
 One that has sorely tried seafaring race ;
 For Albion's sons calamity can trace
 Of every kind, that seaman can befall,
 With death familiar ; sufferings that appal
 The stoutest hearts ; and gone, they leave behind
 Examples great of nobleness of mind :

'Tis not alone tumultuous war deforms
 The ocean's surface, but those frightful storms
 That rage unbounded, and disturb its face
 From its composure, gentle nature's grace ;
 And these sad havoc of our ships have made,
 In merchant craft, engaged in foreign trade.

Once more we cross'd the Equator's sultry line,
 And northward sail'd, where winds and sea combine
 To compensate for those of rougher kind.
 Which about the Azores we shall surely find.
 We enter now the sea Columbus cross'd
 In his frail barque, on rocks of Hayti lost :
 That sea of darkness, then so aptly term'd,
 Which superstition of the day confirm'd :—

That distant day, when darkness of the mind
 Its influence shed o'er projects of mankind,
 Who conjur'd obstacles of every kind
 Against its navigation :—

Want of wind,
 Waters of slime, immoveable, and dark,
 That would be fatal to the daring barque
 Which should its shallows brave,—monsters marine
 Were not omitted to complete the scene,—
 With tangl'd weed,—monsters of hideous form,—
 Portentous lights,—the overwhelming storm,—
 And last, not least, even that heavenly host
 Of brilliant stars, it said, would all be lost,
 Would screen their rays as true celestial guides,
 From him who dar'd t' invade its murky tides !
 The torrid zone !—its heat was said to be
 Enough to draw from vessels in that sea
 The pitch their sides requir'd to keep them free.
 Records of ancient lore, these yet remain
 Fit emblems of the mind of man insane !

The Portuguese far South by sea had gone,
 Columbus saw enough to spur him on.
 His high resolve! Could he not find by West,
 A way to China, that might be the best?
 America he found :—mistaken man !
 Who thought he'd found the empire of the Khan ?
 His voyage once a minor minstrel sang,
 In cadence sweet his flowing numbers ran,
 Which in playful song he thus began :—

No transient ripple plays along the deep,
 Whose every wave is now entranc'd in sleep ;
 The last pale glimmering of the morning light
 Shines now but faintly thro' the shade of night,
 Tinges with streaks of gold the liquid plain,
 And paints the surface of the placid main :
 A barque is seen, but not where mortal eye
 Hath trac'd before the brightness of yon sky ;
 Far, far from every shore, no track to guide,
 No path to lead her o'er the boundless tide,
 Alone she lies, no rising tempest's blast
 Swells her white sails, or bends her pliant mast :
 Her gorgeous standard droops its sinking head,
 Its folds no longer in the breezes spread ;
 While o'er the barque a deathlike silence reigns,
 Th' adventurous chieftain on her deck remains.

To be continued.

Nautical Notices.

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

PARTICULARS OF LIGHTS RECENTLY ESTABLISHED.

(Continued from page 560.)

All bearings are magnetic.

Name.	Place.	Position.	F. or R.	Ht. in Feet	Dist. seen Mls.	[Remarks, &c. Bearings Magnetic.]
57. Sievers's Point (near)	River Bug	Black Sea	F.	55	8	Est. 1866. (a.)
58	.....	.....	..	..	..	Continuation of lightvessels in winter. (b.)
59. Bristol Channel lightvessels.	Gulf Bothnia	.....	..	..	..	Relighted 1st Sept. 1866.
60. Port Natal	One Fathom Bank	.....	E.	38	..	Est. 1st November, 1866. (c.)
61. Cape Romain	Africa. S. E.	.....	..	..	..	Est. 8th September, 1866. Expected.
	S. Carolina	38° 1-1' N. 79° 22-2' W.	E.	154	23	Est. 30th September, 1866. A flash every minute.
	Cedar Cays	Florida; W.	Fl.	75	15	Est. 23rd August, 1866. (d.)
		29° 5-8' N., 83° 4-6' W.				
	Pass Christian	Mississippi	..	..	..	Reestablished.
62. Fano Island	North Sea	56° 27-8' N. 8° 22-8' E.	..	60	..	(e.)
63. Valdivia Harbour	Castle Niebla Point	30° 58' S. 73° 24-5' W.	Fl.	101	8	Est. 20th August, 1866.

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

(a.) 57.—The light is distant 818 yards in a N.E.½ E. direction, from the fixed white light on Sievers point; and the two lights in line, on the above bearing, lead clear of the shoals on both banks of the river, from Sievers point to abreast of the village of Little Dereklea, a distance of nearly 8 miles.

(b.) 58.—The Ministry of Marine at Copenhagen have given Notice, that the lightships marking Trindelen rocks, Kobber grund, and Anholt Knob reef, which have hitherto been withdrawn during the period, between the 31st day of December and the 31st day of March, will hereafter (as is the case with the Læso channel and Drogden light-vessels) be kept at their stations the whole year through, or so long as the Ice allows; and that when compelled by Ice to leave their stations, the lightships will again resume their positions, as soon as circumstances permit.

(c.) 59.—With reference to Notice to Mariners, No. 31 (see p. 385 of our July number), relative to the proposed light-vessel, near the western end of the One Fathom bank in the Bristol channel; on and after the 1st day of November, 1866, there will be exhibited from the light-vessel a *quick revolving* white light, at an elevation of 38 feet above the sea; and for the purpose of distinction, a *fixed red* light will also be shown from a pedestal abaft, at an elevation of 14 feet.

(d.) 61.—The light is a *fixed* white light varied by flashes. It shows a *fixed* light for the space of *forty-five seconds*, followed by a brilliant glare of *three seconds* duration, preceded and followed by a partial eclipse of *six seconds* duration.

(e.) 62.—The Ministry of Marine at Copenhagen has given Notice, that both the beacons on the North end of Fano island have been taken down, and

that a new wooden beacon, 50 feet high, has been erected on the northernmost sand hill of Fanö island.

The beacon in one with Jerne church leads to the buoy on Peacock's plan marked *Gradyb* placed outside the channel, and in the deepest water over the bar to Graa Deep, and on to a large black conical buoy with a staff and ball, on the west tongue of Sören Jessens sand.

The white buoys and marks point out the North side, and the black buoys and marks the South side of the channel, from the Peacock buoy to Fanö roadstead.

CHINA SEA.

The following information has been received from Mr. John W. Reed, Master Commanding H. M. surveying vessel *Rifleman*, as resulting from a survey made by Mr. Tizard, Master, R.N., in June 1866:—

Lamock Islands.—The two small islands adjoining East Lamock islands in a N.E. direction are incorrectly laid down in the charts. From the S.E. point of East Lamock island, North Rock bears N. 38° E., and from the same point the island between North Rock and East Lamock island bears N. 29° E.; the distance of both from East Lamock island is correctly given on the chart.

Times Rock.—The position of this rock, which lies to the north-eastward of the Lamock islands (originally reported by Mr. Anderson of the schooner *Times*; see China pilot, 4th ed., page 104), and on which several vessels have recently struck, has now been accurately determined. It is a dangerous coral pinnacle with only 9 feet at low water. From it the North rock—of the Lamock islands—bears S.W. $\frac{3}{4}$ S., distant a little more than a mile, and Dome island W.b. N. $\frac{1}{2}$ N., distant 12 miles.

When on the rock, the eastern bluff of East Lamock island is just in sight to the westward of the western apex of North rock, the extremes of the island subtending an angle of 13° 11'.

The High Lamock island, open to the N.W. of East Lamock island, clears the rock on its N.W. side; and when open to the S.E., clears the rock on its S.E. side. To pass outside, or the N.E. of this danger, the angle subtended by the Lamock islands should not exceed 10°, when the High Lamock is shut in.

The *Times*, and other vessels, placed this rock much further from the Lamock islands, but on nearly the same bearing as given above; the distance was in 1866, carefully measured from the gun-boat *Drake*, whilst at anchor on the rock. The position assigned to the Times rock on the Admiralty chart, on the authority of Mr. Anderson, was sounded over, but no danger was discovered, and the fishermen—who were offered a reward to point out any other rocks—state that none other exists in the vicinity.

Mackinnon Rock, in the channel between Namoa and the Lamock islands, and on which the *Ellen Rodger* struck in 1862, is a dangerous coral pinnacle, having only 5 feet on it at low water. From the rock the N.W. point of Flat island bears W.S.W., distant three quarters of

a mile; the East extremity of Oeste rock S.b.E. $\frac{1}{2}$ E., $1\frac{1}{2}$ miles; the summit of Ruff rock S.E. $\frac{1}{2}$ E., 2 miles; and the summit of Dome island, N.E. by E. $\frac{3}{4}$ E.

Mr. Boxer, Master Commanding H.M.S. *Hesper*, reported another rock in this channel, a little to the eastward of the Mackinnon rock. This danger was searched for in the *Drake*; but without success, and the fishermen most positively asserted that no other rock than the Mackinnon exists in the channel.

Directions.—To avoid this danger, vessels entering the channel from the westward, should not bring Plat island to the westward of S.W.b.S., whilst Dome island is to the northward of an E.b.N. bearing; when Oeste rock bears S.b.W., they will be to the eastward of Mackinnon rock, and can haul to the northward.

Entering the channel from the eastward, after passing Dome island, steer to the northward until it bears E.b.N., and keep it on that bearing until Plat island bears S.W.b.S.

All bearings are magnetic—variation $0^{\circ} 0'$.

PORT OF ADELAIDE, *South Australia*,—*Regulations.*

Marine Board Offices, Port Adelaide,
August 29th, 1866.

Sir,—I am directed by the President and Wardens to forward you the accompanying copy of Regulations for Vessels hoisting Signals when arriving off this Port; and to request you will give every publicity thereto.

I have the honour, &c.

GEO. J. DIMSLEY, *Secretary.*

To the Editor of the Nautical Magazine.

1st. All ships arriving from over-sea ports within a radius of five (5) miles of the Semaphore Station, on LeFevre's Peninsula, between daylight and dark, shall hoist the following signals:—

1. The National Ensign at the Peak or Ensign Staff.
2. The ship's number as per Commercial or Marryat's Code.
3. The port from whence she arrives.

2nd. All ships from over-sea ports having arrived off the Semaphore Station, or near the entrance of the Port Adelaide Creek, during the night, shall hoist at day-break the signal published in the first clause of these regulations.

3rd. All ships arriving coastwise within a radius of five (5) miles of the Semaphore Station, on LeFevre's Peninsula, between daylight and dark, shall hoist at the main, and keep flying for one hour, the signal indicating her port of clearance or departure, as per code under the fifth clause of these regulations.

4th. All ships having arrived coastwise off the Semaphore Station, or near the entrance of the Port Adelaide Creek, during the night, shall hoist at daylight, and keep flying for an hour, the signal prescribed in the third clause of these regulations.

5th. The following code of signals, indicating the names of ports or places in this province, refer to the third and fourth clauses of these regulations, and are to be hoisted by vessels arriving coastwise, as therein provided:—

Name of Port or Place arrived from.	No. of Flag.	Description of Flag to be hoisted on arrival.
Port Wakefield, or head of St. Vincent's Gulf	1	A white flag with central blue square.
Willunga, or Noarlunga	2	A blue, white, blue flag, horizontally and equally divided.
Yankalilla, Second Valley, or Rapid Bay	3	A white and red flag, divided half to each vertically.
Kangaroo Island	4	A blue flag with white St. George's cross.
Port Victor, or Encounter Bay	5	A red swallow-tailed flag.
Port Caroline	6	A blue, yellow, blue flag, horizontally and equally divided.
Port Robe	7	A red flag with yellow St. George's cross.
Port MacDonnell	8	A blue flag with central yellow square.
Port Augusta	9	A flag quartered blue and yellow.
Port Wallaroo, or Tipara Bay	0	A yellow flag with half blue swallow tail fly.
Port Lincoln	10	Made with No. 1 and zero flags.
Spencer's Gulf, any other part	12	Made with Nos. 1 and 2 flags.
Fowler's Bay	13	Made with Nos. 1 and 3 flags.
Streaky or Venus Bay	14	Made with Nos. 1 and 4 flags.
Flinder's Island, or Islands West of Spencer's Gulf	15	Made with Nos. 1 and 5 flags.
Yorke Peninsula	16	Made with Nos. 1 and 6 flags.
St. Vincent's Gulf, part not specified	17	Made with Nos. 1 and 7 flags.
Fishing or Whaling voyage	18	Made with Nos. 1 and 8 flags.

From Nos. 10 to 18 the flags are to be hoisted together one over the other, No. 1 being always uppermost.

The flags not to be less than one square yard, and pendants three feet by four and a half feet.

Commanders and Masters of ships failing to comply with these regulations are liable to a penalty of not less than five (5) pounds, or more than thirty (30) pounds, under the 19th section of the Customs Act of 1864.

Given under my hand at the Custom House, Port Adelaide, this 9th day of July, 1866.

B. DOUGLAS, *Collector of H.M. Customs.*

HER MAJESTY'S SHIP THE WATERWITCH AND HER HYDRAULIC POWER.

In our number for last May we have preserved an account of the doings of a little vessel called the *Nautilus*, and having had a good opportunity of witnessing those doings, we had the gratification of finding all that was there said of her was quite true. In fact, we pronounced our opinion of her powers and capabilities, and we are again gratified to find that our opinion has even been more than realized by the application of the same principle to the *Waterwitch*. Our limited space does not admit of giving all the details of the last experiment of the *Waterwitch*, on her being completed. But as the vessel has been turned over from the hands of the contractor to the government authorities she will soon be at work to astonish the world.

That the *Waterwitch* will produce a revolution in a branch of the application of steam to maritime purposes there can be no doubt. The *Waterwitch* has been reported in our daily press, but not altogether to our view, and we propose returning to her in our next from this account of the *Times*.

Though we have not been so enterprising as the Americans in devising new models for men of war, yet a report which we published in our last impression contained enough to show that our experiments are not deficient in audacity, and that our authorities cannot be considered absolutely the slaves of routine. When the *Waterwitch* glides into a foreign port, under full water, she will astonish the spectators as completely as the Chinese were astonished at first seeing ships under steam. This last new plan of making a ship seaworthy consists in scuttling her. To get a swift efficient gunboat of the very latest pattern, we now take a well-built craft and bore an immense number of holes in her bottom, then fit her with a waterwheel, and so send her to sea.

Not only, however, can this puzzle be easily explained, but up to a certain point it is rather of an ancient date. The present achievement expresses not the discovery, but the application, of a principle. Action and reaction, as school books teach us, are equal, and the principle in this case is that of utilizing the force created by reaction. If, for instance, a gun were laid on a line with the keel of a floating vessel with the muzzle towards the stern, and fired, a force would be created pressing the vessel forwards equal to the force with which the ball left the gun. This force, however, would be only of momentary duration, but if we could suppose the firing to be continuous, and a ball to be always leaving the gun, it would follow that a reacting force equally continuous would be maintained, and that under this propulsion the vessel would move steadily forward through the water at a certain rate of speed. Now, on each side of the *Waterwitch* is a metal pipe for continuously discharging not bullets by the propulsion of gunpowder, but water by the propulsion of steam, and there the reader has the whole secret. Our comparison of the cannon is borrowed from the inventor himself, who describes his system by the aid

f that illustration, but a still closer parallel is to be found in the principle of the rocket. A rocket, as everybody knows, is driven into the air by the continuous operation of that very force which is represented in the recoil of a gun, and if the firework is properly laid it will fly straight forwards over the earth instead of aloft into the air. So it is with a ship on the water, and, in fact, if the *Waterwitch* had been called the Water-rocket, her whole story would have been told in her name.

It is curious enough to hear that this apparent novelty dates from the year 1661, but, in reality, the very fact that two centuries should have elapsed between the conception and the application of the principle shows how little there is in the idea and how much in the development. The credit of the practical design belongs to Mr. Ruthven, of Edinburgh; that of discerning its probable value to Mr. Andrew Murray, chief engineer of Portsmouth dockyard, and Vice-Admiral George Elliot. By the aid of their testimony and support the invention was recommended to the Admiralty for adoption and trial, and as Mr. Reed was just then preparing the designs of three new gunboats to be added to our Ironclad Fleet, one of them, the *Waterwitch*, was selected for the experiment of hydraulic propulsion. We use this term for distinction's sake; otherwise the *Waterwitch* is just as much a steam vessel as her twin screw sisters the *Viper* and the *Vixen*. Steam gives the power; only, in this case, it absorbs and expels water instead of turning a paddle or a screw.

Another curious point in the case is that scientific authorities are by no means agreed as to the exact nature of the operation expressed in the results. Happily there is no doubt about the results themselves. The case does not resemble that of the famous problem in which it was asked why a large fish, if put into a vessel brimful of water, did not make the water run over, and which was ingeniously argued out on many sides until an actual trial showed that the fact assumed in the proposition had no existence. The *Waterwitch* can undoubtedly be propelled through the water by the action of water itself; indeed, she goes two miles an hour faster than she was expected to go, and as smoothly as a duck. The only practical question concerns the relative profit or loss in speed or power. We have already said that the *Waterwitch*, with all her novelty, is still literally a steamer. She has engines of 160-horse power, which turn a huge waterwheel 14½ feet in diameter, and weighing eight tons. The water required for her work is admitted through holes in the bottom of a vessel to a long iron box, somewhat analogous to the "well" of a Thames punt, in which gudgeon are kept alive. Then the wheel, put in motion by the steam-engine sucks in this water, and discharges it with immense force through what we may call the water guns outside the ship. The form and shape given to these pipes for the generation of the required force will be seen in the Report, but what remains to be ascertained is the comparative cheapness and general advantages of the force itself. The advocates of the new system say that it yields a greater power in proportion to the fuel consumed, than the old screw and paddle

system ; that less power is wasted; that the vessel, which is what the Americans call a "double-ender," can be driven either backwards or forwards at pleasure without any stopping or reversing of the engines ; and that, in fact, the officer in command on deck can change the ship's course as well as modify her speed instantaneously, without communicating with the engine-room at all. A still more singular advantage is claimed for this extraordinary design. Supposing that the *Waterwitch*, or any similar vessel, when in action should be struck by a shot, and have her side torn open, the incident, instead of producing any harm, would be immediately turned to good account, for the captain would simply shut off the water from the regular reservoir, and work his ship with the supply conveniently admitted through the shot-hole. Indeed, one of the objections urged against the plan is that the holes admitting the water to the proper water-box might get choked up or stopped in shallow water, in which case an enemy's shot or torpedo would be a godsend, and enable the vessel to get under water again at once.

We think this idea will bring us well abreast of the Americans in marine novelties. Certainly neither the *Miantonomoh* nor the *Cigar Ship* can beat the *Waterwitch*, with her prodigious waterwheel, her heavy guns, her ironclad sides, and her propelling "jets." As to her seaworthiness, the guarantee now obtained seems unexceptionable. She actually wants three hundred tons of water every minute for the mere purposes of locomotion. How many leaks or shot-holes would it take to let in more? Seriously, however, though the success of Friday's experiment appears to have taken most people by surprise, there is no reason, on the face of the story, why the design should not answer, and it is fortunate, at any rate, that the trial will not be very costly. The *Waterwitch* is only a small gunboat, and even if hydraulic propulsion should be found, upon the whole, to be more ingenious than useful, we suppose it would take very little trouble to convert our "jet-propeller" into a "twin-screw."

AN EVIL AND ITS ANTIDOTE.

We were unable to find room for this important matter in our last—and trust it may be better late than never. Among the papers read at the last meeting of the British Association, was No. 1, as it appeared in the *Athenæum*. No. 2, also, in the *Athenæum*, speaks for itself to all seamen.

No. I.

On the Depolarization of Iron Ships, to prevent the Deviation of the Compass by Mr. E. Hopkins.—The great importance of the subject induced the Lords of the Admiralty to place the *Northumberland* under the direction of the author, to test the practicability of his new system of depolarizing iron-clads. The magnetical conditions of the *Northumberland* were carefully surveyed, and the ship was found to

bo a very powerful magnet—the bow being the north pole, and the stern a south pole. The radiating polar lines extended from the bow and stern respectively to the distance of 60 feet, within which limits the compasses were necessarily under the control of the magnetism of the ship. After she had been launched the ship was taken to the Victoria Docks, and placed in a contrary position to that which she occupied when on the slip. The ship's magnetic and polar conditions were again carefully surveyed. On the 4th of August *the ship was depolarized*, by means of two Grove's batteries, of five cells each, and electro-magnets, in a few hours. This experiment proved at once that *the polarity acquired by an iron ship in building can be destroyed before leaving the dock*; indeed, the result could not be otherwise, as it is merely applying a well-established principle to a new purpose. Magnets can be polarized and depolarized at pleasure, whatever their magnitude. A compass may now be carried round the *Northumberland*, within four feet of the plates without being appreciably affected. Hence there can be no just excuse in future for allowing iron ships to be so much exposed to dangers owing to the errors of compasses arising from the acquired magnetism in building, or from the disturbance of any masses of iron on board.

No. II.

Polarization of the Northumberland—September 12, 1866.—In the *Athenæum* of last week the following announcement appears:—“The curious magnetic polarization of H.M.S. *Northumberland*, arising from her having been built north and south, has been destroyed by reversing that position, and then de-magnetizing her by means of two of Grove's batteries.” It may be inferred from this statement, in connexion with one of a similar nature made to the British Association at Nottingham, in a paper by Mr. Evan Hopkins, C.E., “On the Depolarization of Iron Ships to Prevent the Deviation of the Compass,” that, by the process alluded to, the magnetism required by an iron ship in building was, in the case of the *Northumberland*, so destroyed as to render the compasses on board that ship free, or nearly so, from error.

As everything connected with the connection of the deviation of the compass is not only of scientific interest, but of vital practical importance to the mercantile as well as the royal marine, it is incumbent on those whose duties enable them to speak with certainty not to allow erroneous statements on this subject to pass without correction.

The *Northumberland* having been built with her head nearly north, the compasses in the after-part of the ship had originally very large deviations. When the ship was taken to the Victoria Docks, she was, on the submission of this department, placed in an opposite direction, or with her head nearly to the south, so as to decrease as far as possible the original deviations acquired in building. By careful observations made on the 21st of April last, immediately after she was placed in the docks, the maximum semi-circular deviation of two compasses, one on the front of the poop and the other on the quarter-deck, were

respectively $54\frac{1}{2}^{\circ}$ and 51° ; by equally careful observations made on the 10th of August, these deviations were $55\frac{3}{4}^{\circ}$ and $46\frac{1}{2}^{\circ}$.

The operations of Mr. Evan Hopkins having been performed on the 4th of August, the above results show that, whatever local effect these operations may have had—as to which I have no evidence—no appreciable general effect was produced, and that the *Northumberland* has in no sense of the word been “depolarized.”

FREDR. JNO. EVANS, Staff Commander R.N., in charge of Admiralty Magnetic Department.

NOTES ABOUT NOVELTIES.

It is stated in reference to the China regatta, noticed in our last number, that Mr. Rodger, of Glasgow, the owner of the celebrated clipper *Tae ping*, has presented her commander with the munificent gift of £500, to mark his appreciation of that officer's nautical skill, which did so much towards winning the great ocean race from China. It is also stated that, so keen was the interest felt in the match by some of the crews engaged, that the men of the *Fiery Cross* wagered a month's pay of all on board on the success of their own vessel against the *Serica*; the hands of the latter entering into a similar engagement, which the earlier arrival of their vessel enabled them to win.

Great preparations are being made at Venice to celebrate the entry of the King of Italy into that city. The *Bucentaur*, the historic galley upon which the Doges of Venice married the Adriatic, has been reconstructed and magnificently ornamented. The King will be conducted to the Ducal Palace along the Grand Canal, traversing Venice in its greatest length. Among the patriotic manifestations that will take place is one that is calculated to produce the most profound sensation. One of the most beautiful women of Venice, entirely clothed in mourning and covered with chains, will be presented to his Majesty at the moment of his coming in sight of the city; but, in place of the keys of the city, the Podesta will offer to the King a symbolical axe destined to strike off the chains of slavery. At the same instant the shackles of the captive and her mournful vestments will disappear to the sound of salvos of artillery and of popular acclamations. Venice, personified, transformed into a goddess of liberty, will then present to the King the traditional cushion, upon which will be found a golden key.

The Ceylon papers state that, almost as soon as the Atlantic cable was laid, a captain of a ship who arrived at Point de Galle telegraphed to his owners at New York. He telegraphed to the agents in London, and they telegraphed to America; but the answer was sent direct from New York to Galle. The distance which the telegram and the reply travelled was 20,000 miles, and the cost was £50.

SPONGE.—The sponge business is largely pursued at the Bahama Islands. The exports of this article amount annually to about 200,000 dollars. It is almost entirely the growth of the last twenty years. During that period the article has almost quadrupled in value, and has been applied to a great variety of new purposes, especially in France. This sponge is compressed in powerful presses, and packed like cotton. It is assorted and graded, samples being fastened on each package to show its fibre. It is fished, or raked, or grappled up from the clear sandy bottom, at the depth of twenty, forty or sixty feet, and often far from the shore. The water is so transparent that the growing sponge is visible on the bottom. The sponge is the covering, the habitation, of the lowest order of animal nature. Indeed, organization can hardly be detected in the animal. When first taken from the water, the sponge is black, and at once becomes offensive to the smell; it will almost cause the flesh it touches to blister. The first process is to bury it in the sand, where it remains for two or three weeks, when the gelatinous animal matter seems to be absorbed and destroyed, or eaten by the insects that swarm in the sand. The boatmen who obtain it are paid in shares by the owners of the boats.

The Peninsular Steam Navigation Company's magnificent new steamship *Panama*, the largest in the service, has arrived out after a most splendid passage from Liverpool. She made the run from Monte Video to Valparaiso in ten days. She was brought out by Capt. Thomas, for some years in the company's service.

The Panama Railroad Company have presented £1000 to Captain Moir, of the Royal Mail steamship *Tamar*, for services rendered in towing out the burning wreck of the steamer *European* immediately after the nitro-glycerine explosion at Aspinwall on the 3rd of April last.

On September 12th two men were carried over Niagara Falls. They had attempted to cross the river above the Rapids in a small boat, but being struck by a squall were forced into the Rapids and carried over. No traces of them or their boat had been discovered in the river below.

Messrs. Laird Brothers, of Birkenhead, have nearly ready for launching a vessel which, it is believed, is the largest twin screw iron-clad ever built. She is called the *Prins Hendrik*, and has been built for the Dutch government. Her armament consists of turrets with carriages for two 12½ ton 300 lb. guns on Capt. Coles's system, calculated to throw a broadside of 1200 lbs. The vessel is driven by two screw-engines, each of 200-horse power nominal. The vessel is some three or four feet higher out of the water than others which have been constructed on the turret principle, either in England or America, and the advantage of this is that there will be much more accommodation and convenience for the officers, crew, and stores, which will enable the ship to keep the sea longer than she otherwise could. She has armour

plating $5\frac{1}{2}$ inches thick, with a teak backing 10 inches thick. It is calculated that the speed of the vessel will be upwards of 12 knots an hour. A new transport, intended for the East Indian service, and fitted up to carry 1,250 troops and 200 ship's officers and crew, has been built by Messrs. Laird. She is called the *Euphrates*.

A picture of progress in China says little for that wretchedly governed country:—The French papers publish most lamentable accounts of the condition of China. Even in the imperial city of Peking the most frightful crimes are committed with impunity. Villains stupify their victims with drugged drinks; then carry them outside the city to hiding places unknown to the police; and, unless the families of the captives will offer a ransom, the captives are put to death. Elsewhere the empire is a prey to brigandage of the worst kind, while the Chinese waters swarm with pirates.

Of the ocean race from that part of the world it may be truly said, that the particulars of the race of the three clipper ships from China show that it was the most extraordinary competition ever recorded. The *Taeping*, *Ariel*, and *Serica*, with new teas from Foochow, started together; and after a voyage of three months the three vessels arrived at the London Docks on the same day,—the first of them at 9.47 p.m., and the last at 11.30 p.m. The *Taeping* being the winner, gets 10s. a ton extra. Very heavy bets were laid in China upon this extraordinary ocean race.

Another *amende honorable* we find in the *Commercial Advertiser* of Honolulu, Sandwich Islands, says:—By our telegraphic news it will be seen that the President of the United States was not satisfied with the apology given by Capt. Turnour, of H.B.M. ship *Clia*, for the outrageous conduct of his officers in taking down the sign at the United States Legation in this city, and that he had demanded a further apology from the British Government, which was accorded, and regrets expressed for the outrage.

Mediterranean cruisers will have had enough warning of late to be on their guard when on shore, by the ransom money required from brigands. Here is another cause for caution in the Archipelago. A midshipman belonging to her Majesty's ship *Victoria*, moored in the roadstead of Zante, being on shore, and having lost himself in the night, applied to a police agent to guide him to the shore. The man, instead of doing so, led him into an ambush, where he was robbed; fortunately he had not much money about him. Among the thieves were two other members of the police force.

We are glad to find that the courts of inquiry on the loss of the *Zenobia* and *Die Vernon* have returned the captains their certificates, and that the construction of a lighthouse on Kennery has been authorised.

Some very important experiments, it appears, have been made at Portsmouth with a new binnacle lamp, patented by Messrs. Nunn and

Brown. The advantages of it over the old one are said to be as follow:—1. No downward shadow, thereby securing complete illumination of the compass card. 2. The lamp ships on the top of the binnacle, allowing of bearings of any description being easily taken. 3. The lamp is always vertical; no smoking or blackening occurs. 4. It burns from ten to twelve hours without trimming. 5. The flame keeps the oil always fluid. The lamp has been lighted for the inspection of the admiral and other officials of Portsmouth, and was used in the *Duke of Wellington* from half-past seven o'clock until four the following morning.

CHARTS AND BOOKS PUBLISHED BY THE HYDROGRAPHIC OFFICE,
ADMIRALTY, in October, 1866.—Sold by the Agent, J. D. Potter, 31,
Poultry, and 11, King Street, Tower Hill, London.

- 2,793.—Isle of Wight, Cowes Harbour and View, Commander Edward Brooker, R.N., 1865, (2s.)
- 1,543.—England, East Coast, Yarmouth and Lowestoft Roads, Staff-Commander E. K. Calver, R.N., 1865, (3s. 6d.)
- 1,461.—Mediterranean Sea, Genoa, M. Darondeau, P.I.N., 1853, (2s. 6d.)
- 211.—Mediterranean Sea, Navarin Bay, Captain Mansell, R.N., 1865, (1s. 6d.)
- 343.—Nova Scotia, Lunenburg to Mars Head, Captain Shortland, R.N., 1864, (2s. 6d.)
- 259, a, b.—St. Lawrence River, Montreal to Kingston, 1856, 2 sheets, (4s.)
- 2,490.—United States, Penmaquid Point to Fletcher's Neck, United States Survey, 1863, (2s. 6d.)
- 914.—Indian Archipelago, Waygiou Anchorages, M. Duperrey, F.I.N., 1818, (1s. 6d.)
- 947.—China Sea, Labuan Island, Victoria Harbour, Commander Ward, R.N., 1865, (1s. 6d.)
- 1,269.—Cochin China, Saïgon or Don-nai River, French Survey, 1861, (2s. 6d.)
- 1,380.—Pacific Ocean, New Caledonia, New Hebrides and Loyalty Islands, various authorities, 1866, (2s. 6d.)
- 1,730.—Pacific Ocean, Samoan or Navigators' Islands, and Plans, Commander Wilkes, U.S.N., 1839, (2s. 6d.)

EDWARD DUNSTERVILLE, *Commander, R.N.*
Admiralty, Hydrographic Office, 22nd October, 1866.

TO CORRESPONDENTS.

Thanks for the Bristol paper, which we shall use in our next.

81
left, reporting the loss of the *Libelle*. As near as we could gather from Capt. Barrett, the facts are these: The barque had made good
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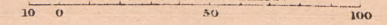
WRECK CHART OF THE BRITISH ISLES FOR 1865.

Compiled from the Board of Trade Register.

SHOWING ALSO THE PRESENT LIFE BOAT STATIONS

- Signifies a Casualty
- Represents a Life Boat

Scale of Nautic Miles.



SUMMARY.

In 1865 the Number of Vessels wrecked on the coasts and in the seas of the United Kingdom was 2012.
 Of these 470 were total wrecks, 70 sunk by collision, making number totally lost 540.
 Vessels stranded and damaged so as to require to discharge Cargo 832, by Collision 690, total 1472, making the whole number of wrecks 2012 and the Loss of Life as far as can be ascertained 698.

	Life Boats	Mortar and Rocket Stations
There are	146	170
	23	33
	23	46

THE
NAUTICAL MAGAZINE

AND

Naval Chronicle.

DECEMBER, 1866.

PACIFIC DANGERS TO NAVIGATION.

Notwithstanding the numerous vessels continually navigating the Pacific Ocean, the chart of that wide sea is far from being perfect. A wreck now and then reminds us of it. There is much to be done there yet by the Naval or Nautical Surveyor. For even many known islets themselves are wrongly placed, wrongly delineated; while others, although perhaps very few, are not known at all. Some may be known to the careful collectors of hydrographical records, so essential to safe navigation anywhere; but to others, who are heedless of such particulars, although very well known, they do not perhaps appear in their charts.

Whatever may have been the reason, here is an account of the loss of a ship, in consequence of which the surviving crew and passengers had to make a run in the ship's boats above a thousand miles, to their sad inconvenience and risk of life.

A Sandwich Island paper gives the following account of the wreck of the barque *Libelle*, which vessel had sailed from Honolulu so long ago that she was given up as lost, as has been proved to be the case by the following extract:—

"*The Barque Libelle*.—This vessel, in which Madame Bishop and party took passage at this port for Hongkong some five months ago, and which was supposed to have foundered, has been heard from. A ship arrived at San Francisco from Manila the morning the *Windward* left, reporting the loss of the *Libelle*. As near as we could gather from Capt. Barrett, the facts are these: The barque had made good

progress towards China, when, by some error caused by the current or chronometer, she run on to Wake's Island in the night. This is a low coral island, only eight feet above the water, with a lagoon in the centre. There are no trees or vegetation of any kind on it, and it has the appearance of being at times submerged. It has a lagoon, filled with the finest fish, and it lies in North latitude $19^{\circ} 10' 54''$, and in longitude $166^{\circ} 31' 30''$, just about half way between Honolulu and Hongkong. The officers, passengers and men all got ashore safely, though the vessel was a total loss. They secured, however, the specie, amounting to 93,943 dollars, which was buried on the island, and will probably be saved on account of the underwriters. Whatever provisions and clothing were required were also taken. They then fitted up the boats and proceeded to Guam, one of the Ladrone Islands, a distance of 1000 miles, where the boats had arrived. We have not the full particulars either of the wreck or of the voyage in the open boats to Guam. It is one of those accidents which occasionally occur in this broad ocean. The case of the *Hornet's* captain and crew, an account of which we gave lately, was another. Among the passengers were Madame Anna Bishop, Mr. Schultz, Mr. Lascelles the pianist, Eugene Van Reed, Kisaboro the Japanese, and some others. Besides the specie noticed above, the cargo of the *Libelle* consisted of 1000 flasks of quicksilver, 30 packages of hardware, 1000 barrels of flour, 2000 bushels of wheat, and a few other articles, valued altogether at over 50,000 dollars. From this port she took 8,100 dollars in specie and some 10,000 pounds of copper."

The following particulars, which appear to have been received from San Francisco, appear in the same paper:—

"*The Wreck of the 'Libelle.'*—The ship *Silas Greenman* arrived at San Francisco on the 26th July, fifty days from Hongkong. She brings intelligence of the barque *Libelle*. The following, from the *Hongkong Free Press*, shows that twenty-two of the crew and passengers are safe, while the fate of the captain, with eight others, is unknown. We are yet left in doubt as to who are the lost ones. The treasure, nearly 100,000 dollars, was saved, and buried on Wake Island by the captain. Those saved were landed on Guam, one of the Ladrone Islands. The *Press* says:

"The Bremen barque *Libelle*, under the command of Capt. Tobias, on the passage from San Francisco to Hongkong, with a valuable cargo, valued at over 300,000 dollars, was cast away on the night of March 4th on an uninhabited and dangerous reef called Wake Island. The passengers and crew remained on board during the night, the sea breaking fearfully over the wreck all the while, and landed with difficulty through the breakers the following day.

"After an ineffectual search for water for three weeks and much privation, it became imperative to take to the boats and endeavour to reach the nearest habitable island friendly disposed to defenceless shipwrecked people.

"Several days were spent in finding a suitable and safe point for

departure, the breakers encircling the island, which appeared to be some twenty miles in circumference. Taking such provisions and water as were saved from the wreck, passengers were transferred to the ship's longboat in charge of the first mate, the captain preferring his gig; and on the 27th of March both boats sailed for the Ladrone or Mariana Islands.

"Twenty-two persons, with provisions, in an open boat but 22 feet in length, to undertake a voyage of 1400 miles, subject to equinoctial storms, calms, and a tropical sun, with short rations and an ocean studded with hidden rocks and coral reefs, gave but poor hope of arriving at a port with life.

"The dangers which were imminent from the frequent squalls, cross seas, and shipping seas encountered, were the greatest trials, and in thirteen days, the boat being 6° of longitude in error, arrived off the town of Guam, all in a pitiable and forlorn condition.

"The captain, with eight persons, in a boat of 20 feet in length, leaving at the same time, has not been heard from, and, unless picked up by some chance vessel, must have been swamped, as a heavy cross sea was met shortly after leaving the island. This, it is said, was the third vessel the captain was so unfortunate as to lose within the past few years.

"Among the passengers were Madame Anna Bishop, Miss Phelan, Mr. M. Schultz and Mr. Charles Lascelles, of the English opera troupe, and Mr. Eugene M. Van Reed of Kanagawa; almost all nations being represented.

"Too much praise cannot be awarded to his Excellency Francisco Moscoso y Lara, governor of the Mariana Islands, for his prompt and humane efforts to relieve the distress of the shipwrecked, who had lost their all and were in want of everything. A schooner also has been chartered and sent to search for the missing boat among the islands of the northward, and to return to Wake Island and remove the large amount of treasure which had been saved and buried there."

"Mr. Van Reed, holding an official position, together with a Japanese, were alone allowed to leave Guam prior to the return of the vessel from the scene of the wreck, and has arrived here in the *Trinculo*, which had put in on her way from Australia."

Letter from Madame Bishop.—Mr. Gray, No. 613 Clay Street, has received the following from Madame Bishop, the best evidence of her safety:—

"Guam, Mariana Islands, May 7th, 1866.

"You will be shocked to learn we have been wrecked on Wake Island on the 5th of March, and lost all. We were three weeks on the uninhabitable island. No water, and had to wait three days before we could get any from the ship. We had no clothing but what we stood in up to arriving on this island. The governor and inhabitants have been most kind, and furnished us with a few materials to make up a little clothing. They have no stores here. We came, twenty-one of us, in an open boat, fourteen hundred miles. How we wished it was

to San Francisco! A perfect miracle our safe passage to this place. The captain of the *Libelle* left at the same time we did from Wake Island, in a small boat, with four of his men and three Chinese, but up to this time we have heard nothing of them. We are here a month to-day. The governor has sent a schooner to Wake Island for the specie saved from the wreck, and we have to wait its return to take us to Manila, where we hope to commence operations. Mr. Van Reed and the Japanese are allowed to go with this to Hongkong.

"You cannot imagine how we suffered all one night, from 9h. p.m. till 8h. a.m., thinking every moment would be our last; but the Almighty was watchful over us, poor sinners!

"Mr. Schultz, Mr. Lascelles and Maria are with us.

"Truly yours,

"ANNA BISHOP SCHULTZ."

It is gratifying to find the Spanish governor at Guam so highly spoken of,—an account of whose islands, the Marianas (it is time the obnoxious term Ladrone was abolished), we have given a lucid description, being the account of them by a Spanish naval officer commanding the *Narvaez*; and these too, as he showed, required much correction in the chart.

But of the position of Wake Island, the site of the wreck, we find the following in the same paper of a later date:—

"An old and experienced shipmaster has handed us two items regarding Wake Island, the scene of the disaster to the *Libelle*, and the reef noticed in our last upon which a vessel was lost, and the crew reached Tahiti.

"Wake or Halcyon Island is fifteen miles in circumference, and has a lagoon inside. The island is surrounded by rocks, and the beach is covered with short brushwood. Its position is in lat. $19^{\circ} 11' N.$, long. $166^{\circ} 31' E.$ Vessels leaving or passing Honolulu should get into lat. $18^{\circ} 30' N.$, which parallel will carry them through the Ladronees clear of all danger up to $130^{\circ} E.$, then steer for the Bashees. Vessels taking this course have the full strength of the N.E. Trades at all seasons.

"The shoal or reef upon which the British barque *Sir George Grey* was lost, and which the captain says was not laid down on his charts, will be found on the French charts of D'Urville, and is styled 'Ile et récif de Minerve.' It is located as follows: East end, lat. $22^{\circ} 35' S.$, long. $135^{\circ} 24' W.$ of Paris. West end, lat. $22^{\circ} 36' S.$, long. $136^{\circ} W.$ of Paris."

The position given by the experienced shipmaster above-mentioned accords well with the Admiralty chart of Wake Island, but which seems deficient of the reef of twenty miles' circumference about it. And there seems to be some confusion whether Halcyon Reef, laid down some twenty miles to the Northward of it, should or not be the reef alluded to. At all events, Halcyon or Wake Island seems to be considered but one island, affording by this doubt a reason for the ob-

servation we have made. Is it so or not? No survey that we know of has been made of it, and Wilkes seems to dismiss it.

But of the shoal on which the *Sir George Grey* was lost, the chart seems to give but a very limited account; although the position it is placed in thereon seems to be but a little to the Southward of nearly the middle of it. Seamen need have their eyes open at all hours when navigating the Pacific. Of one we find but a poor account given by Findlay, and none whatever of the latter—the *Minerva* or *Ebrill Reef*.

THE LITTLE MINCH CHANNEL.

(Continued from page 568.)

The gale having abated, we start for the Minch. In leaving Loch Bhracadale the visitor will be attracted by the lions of Skye. There is a singular castellated rock, standing conspicuously by itself on a peninsula jutting out from the island shore, and completely perforated by an arch, which gives it a most singular appearance. Next to this Macleod's three Maidens will attract his gaze, standing up out of the sea in the most graceful forms imaginable. The tallest is 200 feet above its level; but they really consist of masses of dark basaltic rock standing on a base of red clay and sandstone, which is annually lessened by rain, wind, and storm. The most advantageous position for seeing these figures is about a quarter of a mile distant, while the sun is setting and the weather is fine. At any time, especially in a storm, they would form a fine subject for the artist's pencil, affording a picture seldom seen. Full oft have I passed them, regretting I could not stop to gaze even on their outline, and obliged to be contented with a passing glance as my vessel rushed quickly by them in her retreat from an approaching storm.

Once on a time, as the story goes, there was a fourth Maiden; but she has disappeared for some years since, unable to withstand the rude shocks of the world, and no doubt undermined by the constant washing of the Atlantic waves, as the constitutions of others are although of flesh and blood by the vicissitudes and trials of life. The tallest, notwithstanding her feminine character, has more the appearance of a bishop in his robes than a maiden, or perhaps she might pass in the dusk for a lady in her evening dress, were it not for her position. The two smaller Maidens resemble young females in a beseeching attitude, imploring some boon from a difficult lord and master. But before he has made up his mind on the subject, the vessel is swept by and the visitor sees before him Macleod's Tables, in the shape of some peculiar flat-topped mountains, some 1500 feet high, which are fine objects for his contemplation and surprise as to how they should have obtained so common a household name.

Vaterstein Head, Meal a veg, and Dunvegan are noble headlands,

each a thousand feet above the sea, with green grassy slopes, affording excellent grazing for the many sheep he will see scattered in twos and threes on them. Most sheep, it is too true, fall by the hand of the butcher; but these are doomed to a different mode of death. They have strayed away on these heights, perhaps unconsciously, and tempted to graze, whence they can never return alive. For there they are shot, and the carcasses allowed to fall into the sea beneath them, where they are picked up by boats. It has been kindly observed that this is the only way to save them. Save them, indeed! say rather, the pockets of their owner. But he is not always so fortunate, for in some parts of the South of Skye, it is said that about one hundred out of a thousand sheep are lost *in this manner* annually, that is, they are not killed in a scientific style, or, as it may be, *secundem artem!* so that the errant sheep die by the hunter instead of the butcher, as a penalty for their errantry.

Rounding Dunvegan Head the vessel runs into the spacious Loch of Dunvegan; at the head of which, standing on an almost isolated rock, is the ancient castle of that name, the property of Macleod of Macleod, the most ancient family of Scotland. At present it is occupied by Lord Hill and his family, of Hawkestone, Shropshire, who annually resort there, not only for the benefit of the mild and healthy atmosphere of Skye, but also for the shooting on the Isle of Harris. His lordship's steam schooner yacht *Hawke* graces the loch under the castle windows, and St. George's ensign floats proudly over the towered battlements of the castle.

Dunvegan Castle, be it remembered, soon lets the weary traveller know the true meaning of the word "hospitality." It is here he finds a larder well supplied with venison, game, and salmon trout, with fruit and vegetable gardens at his service; not to omit the dairy on the opposite side of the loch, nor the crowning advantage that, from a neat cottage in the direction of the inn, will come the richest flowers imaginable, as well as presents of vegetables for sickly crews.

Nothing can be more winning, nothing more tempting, than those beautiful scenes, so well calculated for retirement, which we meet in every part of the Highlands. But, like all this world's blessings, they have their alloy. Distance from society, from every social resource, every attraction which can render solitude tolerable, amid woods and rocks, torrents and green pastures, is here on the margins of bright lakes and blue seas, scenes of enchantment and peace, breathing that air of freshness and tranquillity, and promising ease, repose, and freedom from care, to which we long to fly from the turmoil and trouble of every day life; but where is the charm of some sprinkling of society? Solitude—lonely, silent solitude—prevails.

An hour or two among the many windings of the Castle will well repay the curious. An obliging, patient and good-tempered house-keeper attends you,—one who is entirely free from those long, tiresome, improbable stories which this class of people manage to learn by heart, and then bore you with in detail, while you are compelled to listen to them by the hour, naming the very minute, perhaps the

second, that some person saw somebody else do something! The haunted room where Sir Walter Scott slept, and from which he or Dr. Johnson (it does not matter which) imagined they saw one of Macleod's Maidens, which was impossible! Also the fairy tower, the marvellous staircase, the fairy flag, and the horn of Rory Mhor,* and the still more wonderful well, (almost as strange as the well at Kilbar, which throws up the seeds of cockles,) where it is said that not long since, after dinner, one of the party fell accidentally down, a depth of 50 or 60 feet, and was never heard of afterwards. Right it was, no doubt, that after such an event it was covered over, and a side entrance formed to it. I was always curious in ascertaining the depths and temperatures of wells, and after my first visit had prepared lead lines, thermometer, and all necessary apparatus for a deep fall, repaired to the well and let go the lead, and to my utter disappointment found *three feet!* The man touched the bottom without wetting over his sea-boots. The housekeeper exclaimed, "*Well, I never;*" and was as much surprised as myself.

Dunvegan has been called Loch Follart. The castle dates (as far as is known) to the ninth century—some say the thirteenth century—that is, the most ancient portion of the building, the walls of which are of enormous thickness; but the various additions have quite altered its original form. The tower was added by Alastair Crotach, son of William, slain at the battle of the Bloody Bay.

We must here digress, just to give an idea of the improbability of the many tales of travellers that the traveller is told of these places. I have passed that "bloody bay"—if it is the same near Tobermory, Isle of Mull—on several occasions, and have always had a different account given me of the origin of its "bloody" name; therefore the chances were four to one in favour of their being all falsehoods. It is not from my desire to perpetuate either as the true one; but if the reader has them all briefly before him, he will have the privilege of judging for himself which is the most probable.

The first, and least probable, says that a man (for some reason unknown) had backed his horse over the perpendicular cliff above the bay, when, as a natural consequence, both man and horse were dashed to atoms by the fall.

The second, no less tragical, is that a man had murdered his wife there. (A very old story this.)

The third states that it was the scene of a bloody engagement between the Macdonalds and Macleans when party strife ran high between different clans.

The last, which leans for support on history, declares that several ships of the Spanish Armada were sunk here; but whether in war or storm does not appear to have been "handed down." Perhaps this matters little now; but certain it is, that in Tobermory, a short distance from this bay, one of the Spanish vessels was blown up, and until very lately one of her timbers or knees formed a portion of Tobermory Pier,

* Scott's Notes to the Lord of the Isles.

until found out by tourists, when it was carried off piecemeal by every visitor until all was gone.

An account of the blowing-up of this vessel I do not recollect to have seen in print, and as it is both remarkable and, of course, comes from "good authority" (as is always the case), here it is.

"After the running engagements between the English and Spanish ships in the English Channel, one (Spanish) escaped and fled to the coast of Normandy, off which a gale blew her into the North Sea, and running North about she passed through the Minch and put into Tobermory. This vessel was said to have had on board the *Princess Royal of Spain*.

"On arrival at Tobermory, the Princess sent for and invited on board all the gentlemen of the Isle of Mull and adjacent parts, among whom appeared the chief of the Macleans, at that time sole proprietor of Mull, living in Duart Castle, and considered to be the handsomest man in Scotland. The Princess fell deeply in love with him the instant she saw him, declaring that having seen him in a dream was the sole cause of her leaving Spain, to endeavour to meet him, and that if he would go to Spain with her she would marry him on arrival there!

"To this proposal Maclean consented, although he was already married to a daughter of the chief of the Campbells, who lived at Inverary Castle, and had at this time an only child, a son, about two years of age.

"All the visitors to the ship having returned to their homes except Maclean, his lady became rather surprised; and Maclean having sent his valet home for some things, he told Lady Maclean of her lord's intentions. She bribed the valet, who had access to all places on board the ship, to lay a train to the magazine, and watching the opportunity when his master would be in the boat alongside going on shore, to pretend he had forgotten something, run below, put fire to the train, and make his escape. This was all done, according to the lady's directions; the ship blew up, and all on board perished, including the Princess.

"It having come to Maclean's knowledge that all this occurred through his lady's plans, the same night he arrived at home. He had her bound hand and foot, a handkerchief tied about her mouth, placed her in a boat, and conveyed her to a half-tide rock opposite Duart Castle, which ever since has been called the Lady Rock.

"Thus was she left to perish by the flowing tide. She is said to have rubbed her head against a sharp rock and cut the knot of the handkerchief, and was then enabled to cry for help. A boat passing at that time, her screams were heard; they rescued her, and took her home to her father at Inverary Castle.

"In the mean time Maclean spread a report that his lady had died suddenly, had a coffin made, put some weight into it, and buried it, pretending that the state of the weather prevented his sending for her father and other relatives to attend the funeral.

"Some time after this occurrence her father sent for Maclean to

visit him, which was accepted, and on his arrival he appeared to be very disconsolate for the loss of his lady. Her brother asked Maclean 'What he would give to have his wife restored to him alive and safe.' He answered that 'such a thing was impossible.' At that instant her brother arose, and opening a room door close by, led his sister forth. They rushed into each other's arms, but her brother, taking advantage of the moment, plunged his dagger into Maclean's heart, and he fell dead instantly. His lady died of a broken heart very soon afterwards.

"Young Campbell immediately came to Mull, to take possession of the property in his nephew's name, who, returning with him to Inverary, was brought up with his uncle, but was never told who he was or from what family he sprung until about twenty years of age, when it happened that he went in the train of his uncle's followers to the Isle of Mull, landing at Loch Don, where they were met by a number of Mull men. They knew that their young chief was still alive, and some of them knew him from his likeness to his late father.

"One of the Mull men asked the Campbells which among them was Maclean? But they put him off by saying, 'This is him,' and 'That is him.' At last the Mull men, losing all patience, spoke to Maclean himself, and told him who he was, at which he appeared angry. The Mull man, however, proving who he was, also told him that his uncle's valet had on his father's sword. Young Maclean, looking at it, saw the Macleans' crest on the hilt, and asked the valet to deliver up the sword, which being refused, Maclean drew his sword and cut the valet down, recovering his father's sword, mixing at once among the Mull men, when a fray commenced, and after many were killed on both sides, the Mull men increased in numbers and the Campbells were compelled to make a precipitate retreat to their boats, and leave Maclean with his own people.

"Several battles were fought afterwards between Maclean and his uncle with successes on both sides; but in the end, Maclean, with some of his followers, was obliged to retire to a stronghold in the Island of Kernbulgh, one of the Ireshinish Isles. Some time after this the Campbells got a grant of the Island of Mull from the King, and Maclean's reign was then over."

Such is the story of the Bloody Bay; in which there is no want of love, romance, probability and improbability, and from which the reader can glean or dismiss at pleasure, and take it which way he will it has a good historical hold on his attention. But we will now return to the castle.

The extended edifice connecting the tower and the most ancient portion of the castle was raised by Rory Mhòr, after whom the cascade near the castle is called. At least, it was termed "Rory's Nurse," because he always slept sounder when under its soothing influence than anywhere else. The castle now appears from the anchorage to be the solitary massive dwelling of some giant, formed of portions of work, each of different dates, and altogether without design. Although, with its projecting battlements, lofty turrets, and embrasured walls, it has a picturesque and imposing appearance. Standing on an isolated

rock, connected only with the shore by a neat bridge, itself unfinished, four octagonal pieces of stone resembling the Giant's Causeway are seen lying idle and nearly obscured by ferns and long grass. No doubt this was intended at first to secure the chains of a drawbridge, which would have been more consistent. On one side of the castle is the sea (at high water); on another, a river and cascade; on a third, a deep gorge, isolating it from equally precipitous shores. It is one of the few strongholds of by-gone times that continue still to be inhabited; but most of the others in Skye are in utter ruin. Under the castle windows facing the sea is a meadowed platform, with ancient cannon peeping through time-worn embrasures.

In the rear of the castle, among the flower and fruit gardens, is a bowling green of an oval form, smooth, mossy and level, where the Macleods have hurled many a bowl. My guide informed me, with the most serious expression of countenance imaginable, that some years ago (? two generations) Macleod's dying request, at many miles' distance, was that "he be buried in the centre of this bowling green!" His remains were accordingly deposited there with great solemnity and 'midst much weeping. All was again levelled and smoothed over; whether the bowling was continued no one says, nor was it likely. However, the body was removed to the family burying-ground at Kilmuir, not far from the castle, at night. The surrounding tenants knew nothing of the transaction, or it might have led to a feud, as it was their laird's dying request to be in "the centre of the bowling green." But, after all, this may have been a fanciful fiction of my pilots, or it may be true.

Not far from the castle are the walls of a very old building, said to be a kiln for drying malt. On the face of it is inlaid a slab of stone very curiously carved, and which is said to have been removed here from one of the dark passages of the castle during its alterations. Indeed, it is almost worse than concealed now, hidden as it might have been before; for in its present position the hammer of the tourist has already commenced its inroads on it. Why it was not placed over the castle door or windows does not appear. There it would indeed have been a most attractive relic, and, what is better still, would have been out of the reach of the visitor's destructive hammer.

I passed some two hours, uncomfortably seated on the forked branch of a tree, endeavouring to trace this curious and ornamental portion of the old building.

The slab is 9 feet long by 2 feet 6 inches wide, and the embossing or carving is $3\frac{1}{2}$ inches in depth.

A shield in the middle of it is supposed to contain the Macleod arms, bearing on its upper dexter quarter the Manx arms, or more properly legs; one of which is spurring Ireland, another kicking Scotland, while the third kneels to England! Then the Castle of Macleod is under it, beneath which is a mermaid floating on the waves. This mermaid, however, does not possess (for some unaccountable reason) the lower portion of a fish, which is generally supposed to be the case, but what appeared to me, looking closely at it, a very ex-

tensive crinoline! Sailors only are supposed, from actual observation! to know anything concerning mermaids, and the little they do know they feel it would be more prudent to keep to themselves.

The upper sinister quarter of the shield contains an indescribable animal (rampant); next to which is the bloody hand of the Macdonalds,—the origin of which is worth knowing. Tradition says, rightly or not, that old Macdonald left a portion of his inheritance to his two sons, about which there was some doubt; however, they were not long in arranging between themselves that whoever should first land on the property should be the lawful possessor. The two young gentlemen accordingly set out at the same time in boats (called *burelins* in those days), rowed by powerful men. The race was hotly contested; and it was difficult to say which would be the first to land and possess. But one of the Macdonalds drew his sword, cut off his left hand, and threw it on shore, exclaiming, "My flesh and my blood buys me mine inheritance." From this deed of daring he became the possessor; and hence the "bloody hand."

Beneath these, again, are represented waves, with a burelin running free, or before the wind. She once had a squaresail set, but time and atmospheric influence have done away with all that. Then, following the burelin, is seen a salmon; and surmounting the whole shield is a coronet. Above this, again, a garter is extended; but time has effaced all the inscription there no doubt was upon it. Each end of the garter is held by female figures with wings; the other hand of each holding a laurel branch.

The shield itself is supported by two griffins, supposed to be guarding it, with drawn daggers; but, alas! their odd-looking tails, like the handle of a water-jug, rob them of all warlike appearance.

To complete the description of this curious old relic. Under each female figure above mentioned is a helmet: that on the left is surmounted by the castle flag and the union jack of England; but the apex, as well as the head of the female figure above it (both of which are gone), the tourists who have preceded me can tell more about. The helmet on the right is crowned by a fat little female, with arms outspread.

At the right hand end of the slab is a stag, supposed to be at full speed; while on the left, another is quietly reposing with its young hind,—both apparently in awkward and uncomfortable positions. The stag appears as if it had been suddenly arrested in its progress by a snow storm, and stiffened with cold.

Two trees finish the ends of the slab, the botanical character of which I tried in vain to discover; but the branches of these bear a pair of turtle doves, evidently intended to illustrate peace, friendship, and sociality.

(To be continued.)

REMINISCENCES OF JAPAN,—*The late Operations of the Combined Fleets.*

(Concluded from p. 499.)

On the following day the representatives of France and England learnt from General Pruyn and M. Polsbroeck that they had signified to them the necessity of the foreigners immediately quitting Yokohama; but that the letter of the Mikado, dated the 24th of June, notifying to the Tycoon that all foreigners were to be expelled, was withdrawn. "When the treaties were concluded, General Pruyn and M. Polsbroeck were informed the first object of the Japanese Government had been to avoid difficulties, and to make a compact of friendship with the different powers. But it had been understood that these treaties were nothing more than attempts to establish, if there would be a similar advantage to Japan as to the other contracting powers to preserve, the commercial relations. Japan had found they would not exist while the foreigners remained at Yokohama. Their presence in this town would infallibly produce a revolution, the effects of which the Government of the Tycoon could not possibly restrain. If the foreigners would content themselves with two ports—viz. Hakodadi and Nagasaki—this revolution would be averted and the friendly relations would not be interrupted."

The Tycoon then explained himself fully on the object which had been assigned to him for three years, and which he had followed up ever since with threats of all kinds. There can be no doubt that the introduction of the foreign element into Japan would be of a nature to introduce some trouble in the commercial relations and politics of the country. But this result was but the inevitable result of the exclusiveness of the country for three centuries, which the Japanese had broken of their own accord, and which it would be impossible to re-establish.

The Government of Yedo, it is true, promised, after the evacuation of Yokohama, security, good understanding, and commerce. But Hakodadi, situated in the North of Japan, was much too far removed from the principal centres of commerce. As to Nagasaki, the presence of foreigners there would have the same effect as at Yokohama, only that no one could submit to the isolated and vexatious régime for which the islet of Decima is so well known. (This is an artificial islet opposite to Nagasaki, which had been assigned as the residence of the Dutch placed there by proscription in the middle of the seventeenth century, to keep foreigners from Japan.) This certainly was the object which the Government of the Tycoon endeavoured to attain, using, with a truly oriental perseverance, menaces and the secret assistance of assassins. Osaka, Yedo, already showed signs of progress in this line, and they certainly would not finish with Yedo.

The representatives of the United States and Holland, although surprised at these communications, saw clearly the bearing of the subject, and replied with becoming dignity. "It did not belong to them

to listen to such propositions, which the several Governments only could entertain. It was their duty to consider themselves not as the channel of these communications. They should follow the wishes of their colleagues at Yokohama, but they could at once say that they could not foresee any favourable answer." They, moreover, refused formally to keep the matter secret from the ministers of France and England as the *gorodjo* required. In allusion to the troubles of the country—the civil war which appeared to be imminent—General Pruyn showed the Tycoon the dangers of the course he was pursuing, and how, instead of benefiting the factions, he ought, by energetic proclamations, to oblige them to respect the treaties. Avoiding all answer to these embarrassing pieces of advice, the Japanese ministers insisted at all hazards on the abandonment of Yokohama. They even spoke of the amount of indemnity to be allowed to each of the foreign residents, and their last words were to the effect that the refusal to leave the city would bring on an entire rupture between them.

The day following the interview, M. Bellecourt and M. Neal in their turn received a letter of summons. The *gorodjo* requested that they would repair to Yedo to take part in a debate, to which their colleagues of the United States and Holland had been invited. Forewarned by the incidents which had occurred at that meeting, the ministers of France and England agreed to give a formal refusal. They could not think, was their written reply, of discussing any communication concerning their leaving Yokohama. All that they could agree to was to submit to their Governments without comment any written proposals which might be addressed to them on the subject, or on any other modification of the treaties. Some days afterwards the *gorodjo* wrote to the foreign ministers, notifying to them the declaration already made to the conference at Yedo. They again repeated that the letter respecting the closing of the ports of Japan should be considered as retracted. This tardy concession was communicated by the ministers to their respective Governments; and as to the special question of leaving Yokohama, they remained there for the time present. But the inventive genius of the Japanese was far from considering itself as beaten.

Early in November the governors of Yokohama wrote to the French and English admirals who were charged with defending the city, that, "*considering the daily extension of the amicable relations between Europe and Japan*, the construction of a battery at Bentem (native quarter of Yokohama), was decided on in a scheme for mutual protection." Although the letter was a simple notification, it was the duty of the commanders-in-chief to inquire, by reason of even the title which the Japanese Government gave them, into the position of the projected work and the fitness for its construction, for the letter of the governors was enigmatical on those points. The admirals, accompanied by the officers charged with the performance of the service, repaired to the place, taking with them the Japanese authorities. Yokohama is bounded, as is known, on the North and South by a double range of hills. Those of the North, contiguous to the Japanese

quarter, from which the canal round the city separates them, are occupied by the governors and partly by Japanese troops, the remainder of the troops occupying casernes at the extremity of the native quarter on the sea-shore. It was in the place of these casernes that it was proposed to build the new battery. Now, it could not be admitted that such a work could have for its object the protection of the city or the anchorage. Besides the castle forts, which for centuries had served as the residence of the daimios, the Japanese had never defended their city. The batteries which they had recently constructed defended everything, whether it was the anchorage or the strait, to oppose in case of war the approach of foreign ships. Such, no doubt, was not the destination of the fort of Bentem. Situated facing the anchorage of the ships of war and commerce, in case of an attack by sea it could not fire on the invading ships but through those at anchor, and was in no way calculated to protect the roadstead from the approach of an enemy.

If the rights of nations were to be considered, it was quite clear that any one may build fortifications wherever it pleases, but the project of the Japanese Government here was attended with serious circumstances. Threats had been held out of great danger, unless Yokohama was evacuated without delay. The Bentem battery might some day become a very serious matter, and on the slightest pretext some day the merchant shipping might be required to quit the bay, to get out of the way of the guns of this protecting battery. Therefore, after some consultation, it was agreed by the English and French admirals to write officially on the 6th of November to the local authorities, stating that, in virtue of the command which they had received from the *gorodjo* relative to the protection of the city, they were opposed to the construction of the battery; and if the works were persisted in, that they would occupy the ground with their troops. The governor of Yokohama replied that he had no power to modify the orders he had received from superior decision; nevertheless, the construction of the battery did not go forward, and six weeks afterwards the *gorodjo* addressed a letter to the French minister, which, without giving any reasons for the origin of the project, stated that it was finally abandoned.

Such was the fortunate result of the affair, which certainly proved to the Japanese the firmness of the policy which the allied powers held towards them in holding the colony of Yokohama. It was after this incident that the Japanese, after seeing persuasions and threats on this subject alike ineffectual, appeared to have decided on sending new ambassadors to Europe. Already, in 1862, this measure had availed them. Received with kindness by the foreign courts, these ambassadors had without any difficulty obtained the adjournment of the opening of Osaka, Hiogo, and Negata. They hoped for the same success in sending another ambassador to demand of all the Governments represented at Japan the concessions which they further asked, and to settle the present difficulties.

The attempts made, on the representation of the French authorities,

to discover the murderers of M. Camus had been attended with no result, and the question of the re-opening of the Strait of Simonosaki was yet unsettled. These two questions would be among the first on which the Tycoon would give explanations to France. It was resolved, therefore, that the Japanese ambassadors should go first to Paris; and to confer previously with M. Bellecourt, two vice-ministers, daimios and members of the second council, on the 6th of December, repaired on board the *Semiramis*. The governors of Yokohama had gone on board before them, received the same salutes as officers of the service, and, with considerable marks of respect, these two officers, for the first time no doubt, set their foot on board an European ship of war. There was nothing in their dress that indicated high rank, unless it was the plainness of their dress, which, although of costly material, was in good taste, being of a quiet unattractive colour; but their easy manner and dignified bearing showed the Japanese to possess these qualities superior to any other Eastern people. Admiral Juarez introduced them to his cabin, where they found the French minister. After the exchange of compliments, the Vice-minister Inaba Jobononzo opened the subject of the interview without accounting for the presence of his colleague Tachibana Idzoumo-no-kami, a young man of distinguished figure, who no doubt filled now the unenviable post of *ometske*.

The vice-minister at once went to the consideration of the *gorodjo's* representations to the ministers of the United States and Holland. "The treaties were but an essay, the application of which had occasioned much embarrassment to Japan." Stopped by the French minister, on the ground of his commencing a discussion on which they had no power to treat, the vice-minister turned immediately to the subject of the interview. "The government of Japan desired to send an ambassador to France. His first object would be to carry the regrets of the Tycoon to the Emperor on the subject of two events, which had not unfortunately prevented the attack of one of his vessels and the murder of a French officer among the difficulties of executing the treaties." The French authorities undertook to encourage a mission of this kind, and to facilitate its departure, looking always on these missions as indispensable. The chief ambassador should be the bearer of an autograph letter from the Tycoon to the Emperor. He should be chosen from among the Japanese of high rank and gifted with full powers, different from him who went in 1862. The first point above all was important, because the bad impression caused in France by the murder of Sub-lieutenant Camus could not, while the murderers were at large, be forgotten but from the official manifestation of regret from the Government of Yedo. The vice-ministers declared that they would communicate these considerations to the chiefs of the two Governments, which to them appeared proper; and they afterwards concluded their visit with a minute inspection of the ship. The Japanese have no ships of war, properly so called. (At the present, several are in course of construction for them in Europe.) The various fittings of the ship, principally the form and manœuvring of the rifled

cannon, seemed to interest them very highly. After having promised to return soon, they took their departure towards Kanagava.

While some sort of solution was in preparation of the difficulties between France and Japan, the position, equally perplexing, on the part of England assumed a new form. After the affair of Kagosima nothing was known of the intentions of the Prince Satsuma, nor of those of the Tycoon, in case of any new conflict. Now, when the English Government wrote to their agent at Yokohama not to put forth the ultimatum, signified at first with so little success, to maintain the *status quo*, and to indemnify the victims of the attack on Richardson with £25,000, pre-levied by the £100,000 paid by the Tycoon, at this moment the rumour spread at Yokohama that the officers of the Prince of Satsuma, bearers of propositions from their master, had arrived. On the same day, some hours afterwards, these officers appearing at the doors of the British legation, attended by an officer from the governor, Colonel Neal consented to grant them an official conference on the following day, the 9th of November. Two interviews, in fact, took place. The officers having explained the motives of the attack made by the English fleet, the Prince, taking the confiscation of his vessels as a measure preliminary to the attack, and not as a provisional measure intended to hasten his resolutions, was the first to open the fire. His town and his ships had been destroyed, and he could on his side claim an indemnity from the English Government. This opening, little encouraging as it was, still was nothing more than the usual game of Japanese diplomacy: to demand what was not possible, in order afterwards to show concessions! At the second interview, requested by Colonel Neal, the messengers admitted the justness of the demand of the English, and promised to find the murderers of Richardson and to pay immediately the £25,000. Nearly a month slipped away after this formal engagement, and nothing further heard of it, the Prince or his envoys taking no notice, when, on the 11th of December, these last appeared at Yokohama, bringing in Mexican dollars the amount required. The payment was thus made off-hand, and the Prince's officers, on the business being concluded, conducted themselves in their manner and conversation with the greatest affability towards the English authorities.

They gave some details of the action of Kagosima. The town had suffered severely; the loss of men on the part of the Japanese had been far more than that of the admiral. On visiting one of the corvettes in the road, they expressed much regret at not having such a vessel themselves; but the Tycoon, they said, would not permit their master, a damio, to possess so powerful a ship of war. These curious remarks, along with others made by the same officers of this damio, shows the true policy of the tycoons. Faithful to the order of the true sovereigns of Yedo, they persevere in keeping down the ancient nobility of Japan, and force them to remain in a condition of divided strength, which places their ultimate independence as far off as ever. Without obtaining it from strangers, the Japanese Government seeks to obtain its resources from them. It learns from Europeans the art of war,

and it carefully accumulates the enormous benefits of commerce, making use of them at its pleasure. The probability of a collision between the English and the Prince of Satsuma had no doubt suggested to it the fear of his opening his ports: thus the Government exercised no pressure on the Prince to accommodate the British authorities. Many Europeans even at Yokohama thought that, not content with acting the part of conciliation, it had been, in his uneasiness, the means of advancing to the damio the amount of the indemnity.

At the commencement of 1864, the embassy charged with visiting the European Courts was ready to set out. Two superior functionaries of foreign affairs were made the chiefs of the mission, composed of a numerous retinue of officers and interpreters. A sum of about five millions of francs (£200,000) was paid to a banker at Yokohama for a London house, in order to defray the expenses of the voyage and those of residence. In proof of its pacific intentions, and to facilitate as much as possible the object in view, the Japanese Government signalled the departure of the embassy by a measure favourable to commerce. The duties of entry on foreign goods, which pressed heavily on commerce, were lowered 5 and 6 per cent. This boon, promised in 1862 by the first embassy, had been in vain looked for by our ministry.

On the 5th of February, 1864, the ambassadors embarked in the corvette *La Monge* for Shanghai, where their passage had been taken in a steamer of the Messageries Impériales. A salute of seven guns was fired in honour of the Japanese flag, which was returned by the fort of Kanagawa. At the same time the Tycoon quitted his capital for Kioto, to discuss before the assembly of damios the grave question of the presence of foreigners. It was hoped from that day that the position of Europeans in Japan, which had been so precarious and who had been so grossly treated, would become improved. In waiting the results of this new embassy, which seemed well designed to obtain its mission, the continuance of everything in its then condition seemed to be a kind of tacit convention. Commerce would not suffer, and the plenipotentiary of the King of Prussia, after much parley, obtained a treaty similar to that of 1858. In consequence of this pacific situation of affairs, the commander-in-chief of the French squadron did not hesitate to leave Japan for a while to go to China, where his presence was needed; and on the 11th of March, in the morning, we made sail from Yokohama for the coasts of Tzekiang and Petchélé.

The recital of these military and diplomatic proceedings appears to us of much importance, and we may deduce from them without much doubt the line of conduct which the Japanese Government will follow with the powers. This empire at the present moment is entering a very grave crisis. The day on which the Government of Japan opened by treaty access to its shores for Europeans two elements diametrically opposed to each other came into operation. On one hand is an immutable empire, governed by an ancient and feudal system; on the other, the forerunners of European emigration, animated by a sort of commercial fever, spreading itself throughout every sea. The

organization of Japanese society remains from its origin entirely aristocratic and military. The princes, the nobles, the priests, the functionaries, and, next to them, certain of the people distributed in fishing, labourers, merchants and beggars, form so many distinct classes, in which each one is born and lives, with no means of leaving it but very rarely indeed. The superior classes, admitted only to bear arms and instructed in their use, have for their charge the honour and safety of the country.

Now, the arrival of foreigners threatens materially to modify this state of society. The upper can only see with disgust the class beneath them of merchants amassing wealth, and eluding sumptuary laws, which assign to each, according to his rank, the manner of life he is to pursue, even to the least details. That social equality which prevails among Europeans, which approaches the administrators of government, and receives consideration and obtains influence from fortune honestly acquired, above everything else shocks the feelings of this essentially aristocratic society. The caste of privilege cannot tolerate this inferior class, which at all times it has held in complete subjection, and fears that some day a total revolution will deprive it of its advantages and authority. It has therefore resolved to resist with all its might, or at least to isolate, the dangerous element which the Tycoon has admitted into the country. While the Government of Yedo, with which foreigners have been treating, kept itself within a policy of temporizing and paying debts, the feudal party, hostile to Europeans, were not inactive. The emissaries of the *damos* preached everywhere hatred to the foreigner, invoking the laws of *Gougesama* (the name under which Hicas is worshipped); closed to them all access to the empire; and inveighed in terms of eloquence the evils next to destruction that were through them approaching Japan,—the crumbling of the ancient state of society, civil war, and, in the end, conquest.

Whether this language was more or less true is of little importance. Certain it is, that it serves the cause of princes who believe the fatal moment of compromising the country and the power of the Tycoon, before whom they have bowed for above two hundred years, has arrived. Hence all the difficulties between Japanese and Europeans. The first foreigners had been received with tolerable cordiality; then by degrees a certain coldness; then a reserve gradually; then a refusal to enter on any relations; and then a system of reticence and little vexatious proceedings, which the Government of Yedo carries on to this day. The inferior class only—that which comes into immediate contact with foreigners—seem to like a state of things which secures to them comfort, and even riches.

One has often condemned the rapacity, the proud and overbearing conduct of the early foreign traders established at Japan. But this is really ill founded, and whoever has seen things for himself will never subscribe to this opinion. Those who had first arrived, behaving with confidence and without armed protection in the ports opened by the treaties, were the agents of large commercial houses of China and

India. If the nature of their operations may sometimes appear singular, this may be explained by the interminable difficulties introduced from the commencement of these transactions. In endeavouring to show commerce in its real proportions, that which may be considered as the principal produce of the country—silk, tea, and cotton—induced the Japanese merchants to part with gold to foreigners. These transactions, which the national laws allowed, became so extensive, that the Government prohibited it under the severest penalties. This was the first infraction of the treaties. Why did not the Tycoon, in framing them, make a reserve of an operation which seemed to trouble the financial state of the country?

Some few tabulated figures will give a good idea of the export of Japan since the opening of the country. The season represented in the following table is from the 1st of July in each year.

<i>Seasons.</i>	<i>Exports from Yokohama.</i>		
	<i>Tea, lbs.</i>	<i>Cotton, bales.</i>	<i>Silk, bales.</i>
1861-62	5,847,133	—	11,915
1862-63	5,796,388	9,645	25,891
1863-64	5,318,123	72,893	15,931

Tea is an article of secondary importance, of a very inferior quality to the Chinese, and is only used in America. Cotton obtains its market owing to the state of affairs in America. As to silk, every bale purchased at the place costs nearly 3000 francs. In the season of 1862-63 the export reached seventy-five millions for this single article. A large part of the silk exported goes to Lyons, where it is brought by the Marseilles steamers. The bale of silk, which costs at first from 250 to 280 dollars, now reach 650 to 680 dollars. This fact must be attributed, not to the dues imposed by the local government, but the excessive demand of the foreign trader, who will soon bring the tariffs of the Japanese market similar to those of Europe. The enormous benefit realised by the natives is largely absorbed by the Japanese Government, which prohibits the circulation of foreign money in the country, and who buys from its merchants their dollars for about two-thirds of their intrinsic value, according to a tax altered arbitrarily from time to time.

Gold exists in tolerable quantities in Japan, and the value of this metal compared with silver is very inferior to what it is among people generally. Gold, as money, is but little used in ordinary business. It is a money of luxury, which lies in the boxes of the treasurer or in the castles of the daimios.

Unfortunately, from the beginning, the Court of Yedo has found itself in a most difficult position with respect to its new hosts. After it has passed among them for the principal power of Japan, the Tycoon will not be long in giving proofs, if not of his weakness, at least of his isolation, in the midst of a faction of which he will not succeed in withstanding the effects. The ministers of the Powers complain that they have never treated with all the representatives of the Japanese

nation, and that they were not installed in their offices with the assent of the real masters of the country. The Tycoon, in signing the conventions with the Europeans, has perhaps overstepped his prerogative, and no doubt there has been exacted from him from the first very much too large concessions. The more restricted and the more prudent the clause of the concessions, the more facility would there be in their execution. The policy of foreign ministers, in presence of the increasing hostility of the higher classes in Japan, was from the first to yield with protests, and to wait, not without preserving the rights of their respective Governments, for circumstances more favourable to the strict observance of international engagements.

A profound darkness envelopes the internal proceedings of Japan and the changes of its political condition. The Government of Yedo, predetermined no doubt to conceal from foreign powers their means of action, and also their weaknesses, has always prohibited the slightest revelations on these subjects. Every infraction of this law is punished with death; and such is the absolute discretion of the governors, as well as of the governed, that the foreigner admitted into Japan, living every day in the midst of the native population, remains ignorant of what passes around him or at a distance. Rare official communications of doubtful tenour, a vague appearance, and the outside of events or popular rumours, are all the matters which he can collect. The spy system contributes much to this state of things, as well as the silent obedience of the Japanese people. The habit which in our society is concealed or dissimulated haughtily, passes there as indispensable in the maintenance of order, and is observed in broad daylight in Japan. Espionage there is a public profession with the hierarchy and has its degrees, which are the rewards of merit and services rendered. Every functionary knows that he is watched by his colleague, while he himself is the spy on another. It is thus that the Tycoons in the days of their power formed a charge against the great judge who dwelt at Kioto in a palace facing that of the Mikado, with the apparent object of watching the safety of the sovereign's life, but in reality to spy out his most trifling actions. The princes themselves also have spies attached to their persons by the Tycoon, and who give a detailed account of their conduct at Yedo; and the damios, in revenge, employ agents at the court of the Tycoon. It may be truly said, that one half of Japan consists of spies on the other half, and the dragon-like character of the penal laws guarantees to the central government the forced obedience of functionaries and the absolute submission of the lower classes.

Although the high feudal grandees push the Mikado now to avenge his legitimate power, the western nations have but one power to recognise and support in Japan, that is, the Tycoon,—a person most compatible by his character with our notions and manners,—the only one who, with our assistance, can save the country from an anarchy which would be the ruin of our establishments. Foreigners should employ all their energy and patience to fix the changing views of the

Government of Yedo. Care should be taken never to make a threat unless where it is necessary it be followed with immediate action, and never fear to strike a blow where a decisive one is wanted.

In the month of August, 1864, at the time that the Japanese ambassadors returned from Yedo and reported to the Tycoon a treaty concluded with France, and which sanctioned afresh the first stipulations, the European squadrons were obliged to undertake a new expedition against Simonosaki. In neglect of all the conventions, the Prince of Nagato still kept the strait closed to foreigners, his possessions commanding the strait. Early in September the naval forces of the Powers attacked this powerful damio, to whom a first lesson was not sufficient; and on the 8th of the same month his shores were completely disarmed, himself being this time constrained to acknowledge his fault.

A general war of the Japanese Government is not to be feared; it knows too well the superior military prowess of the Western nations to go to war with them. What really is to be feared is that this rich country, divided by ambition, ever on the watch, should become the exclusive prey of some resolved at all hazards to conquer it. We should prevent this being done, which would be a sad event for all Europe; and to take part in all the international broils which may affect Yokohama must not be neglected. Our representative should be very careful to watch her progress. A commander of naval subdivision should be always in the bay ready to support our minister and to join any important legitimate enterprise to any part of its coasts. It is said that Japan is at present very vulnerable in a military point of view; the castle forts of the damios and the large towns seated on the borders of the sea are at the mercy of ships with guns of long range. The roads being scarcely practicable, the conveyance of provision to large populous places by means of rice are supplied by coasters; and therefore the blockade of its ports would overcome all resistance.

The events of the years 1863 and 1864 have exposed not only this weakness of "*the great empire of the rising sun*," they have discovered other advantages to Europe. Since our last expedition against Simonosaki (September, 1864), the strait remains open to European commerce, and business at Yokohama has taken a fresh start. During the last troubles, silk, which at Japan is a most important article of commerce to foreigners, did not come from Yedo to the market at Yokohama but in very small quantities.

When a minister or consul makes himself the faithful interpreter of the claims of the colony, a fresh arrival appears at its custom-house, and prices stop from that time in their decrease downwards. In the month of October, 1864, thanks to the energetic demonstrations of the European representatives, abundance of silk came to Yokohama. The Japanese, it must be acknowledged, are gifted with lively intelligence and, above all, have a clear view of affairs. The class of merchants are with us, and, whatever may be the hostility of damios and the indecision of the Tycoon, if the commercial interest of the natives assists

in Japan, it may well be doubted whether the foreign element can ever be banished from it. Everything, on the contrary, promises that sooner or later a revolution must take place in the civil life of the different classes of the empire.

A valuable present from the Tycoon of Japan to the Emperor Napoleon has reached Marseilles. It consists of no less than 15,000 cases of silkworms, the more prized inasmuch as it has been clearly proved that Japanese silkworms produce a superior quality of silk to those of any other country, and are moreover less liable to the disease which has of late years caused so much distress to the silk growers of the South of France. The Professor of Japanese of the Paris School of Oriental Languages, M. Leon Rosny, has been sent to Marseilles by the Government, for the purpose of deciphering the explanatory tickets which are affixed on each case. M. Rosny is accompanied by a young Japanese, by name Sagoura-Gi, and by several of his pupils, who are to assist him in this work.

HOMEWARD BOUND.

PART I.

(Continued from page 604.)

High on the stern, beside the helm, he stood,
 His low'ring brow proclaim'd a thoughtful mood;
 His pallid features bore the marks of care,
 And hope, lit up by anguish, settled there.
 His eyes uprais'd the azure sky survey'd,
 Where the bright stars their silv'ry light displayed;
 So fair a scene calm'd not his anxious heart,
 To him its beauty could no joy impart;
 His crew might rise, might homeward turn the prow,
 And tear the laurel from their chieftain's brow;
 Hope painted to his thoughts, in colours bright,
 The unknown regions rising to his sight.

The Queen of night now graced the cloudless sky,
 And shone resplendent in the vault on high;
 Around her orb the stars their splendour threw,
 And ting'd the waters with a silv'ry hue.
 Waters beneath with borrow'd lustre shone,
 While proud Columbus paced his deck alone.
 He paus'd awhile, against the bulwark leant;
 His inward thoughts on distant regions bent;
 He mused, he hoped, no fear his spirit sway'd,
 His lofty mien no coward heart betray'd;

His manly spirit, unsubdued by care,
 Thus from his bosom breath'd his silent prayer :
 " Our Father ! God ! to whom all wants are known,
 " Who rul'st all nature from Thy heavenly throne,
 " Let Thy far ruling hand my toil befriend,
 " And let Thy mercy on my care attend !
 " Ah ! guide my vessel o'er this raging main,
 " Where nought but storms and angry tempests reign ;
 " Where waves on waves in wild confusion rise,
 " And dash their spray against the cloudy skies.
 " These have I dared, and sought upon the wave
 " A seaman's glory or a seaman's grave ;
 " Then let success my toilsome labours crown,
 " And gild my efforts with a just renown."
 In silence thus the chief his prayer preferr'd—
 Indulgent Heaven his noble wishes heard—
 Long had her arm his gallant vessel led,
 And guardian saints still hover'd o'er his head.

Chorus of Spirits.

Spirits hail thee, chieftain bold,
 Hie thee o'er the western wave ;
 Thou hast learnt from legends old
 Of shores that trackless waters lave.

First Sea Nymph.

Trackless no more—
 For the breeze shall waft
 To the Paynim shore
 Thy well built craft ;
 And a sprite shall attend thee,
 And guard thee, and send thee
 Where the mien and the skill of the seamen of Spain
 Shall awe the dark tribes, who roam and who reign
 Monarchs of woods and islets green,
 Which white man's eye ne'er yet hath seen ;
 And Armadas shall ride
 In their might and their pride,
 Majestic and free, on the breast of the main.

Second Sea Nymph.

Armada, thy name calls me forth from the deep ;
 Armada, thy name wakes a giant from sleep ;
 For the spirit of Britain approaches to cheer
 This lord of the waves in his gallant career.
 Columbus, all hail ! for thy far seeing mind
 Reads the page of the future ; thou 'rt destin'd to find

A treasure, whose value ere long shall surprise,
 By its wealth and its beauty, both the ancient and wise;
 Where Spain hath led,
 The Briton shall tread :
 This day, O Columbus! a world is thy prize.

But now the glimmerings of approaching morn
 The curling ripples of the sea adorn ;
 The sun arises proudly in the sky,
 And bursts majestic on the seaman's eye ;
 The wished-for breezes sweep along the main,
 Which now no more presents an even plain ;
 The joyous crew outspread the swelling sails,
 Which eager haste to catch the coming gales :
 The sails are set upon the pliant mast,
 Which yielding bends before the rising blast ;
 Swift as the hound, when first the stag he views,
 With eager steps his destin'd prey pursues,
 So through the waves the gallant vessel flies,
 And cleaves the billows which around her rise ;
 Within the barque in groups the sailors stand,
 Their looks still seek the wish'd-for signs of land.
 But, ah ! no sign now meets their ardent sight,
 Save where some land-bird wheels its treach'rous flight.
 The raging billows, as beneath they flow,
 No floating shrub, no passing sea-weeds, show.
 Despair now rules their hearts,—they curse the hour
 When first they trusted in their chieftain's power :
 " Shall we, brave comrades, thus our chief obey,
 " And bend submissive to a tyrant's sway ?
 " Where are the foreign lands, the promis'd spoil,
 " Which first allured us from our native soil ?
 " All these are gone ;—then why consent to brave
 " The unseen dangers of the stormy wave ?
 " Why chase a phantom which delusive flies,
 " And seek for lands which ne'er will meet our eyes ?
 " No more deluded o'er the billows roam,
 " But seek once more the sweet delights of home."

They said no more. The chief in silence stands,
 He hears and thus confronts his dastard bands :
 " Think on the glories which success will send
 " To crown our labours with a joyful end ;
 " For soon the winds, which on the water sweep,
 " And curl the billows of the angry deep,
 " Will waft this vessel to some friendly isle,
 " Where Heaven once more will on our fortunes smile.
 " Then rise, be men, still onward persevere,
 " And just success will soon your labours cheer."

The sun now sinks apace, the night appears,
 But yet no land their sinking spirits cheers;
 The rugged seaman heaves a mournful sigh,
 When still his eyes behold a shoreless sky.
 The sun had set, and all around was dark,
 But on, still on, they urge the gallant barque;
 The gale increas'd, the billows round her raged,
 And winds with waves an awful contest waged.
 No morn appear'd; for many a misty cloud
 Conceal'd its brightness with a murky shroud.
 Oft from on high the rolling thunders clash'd,
 And forked lightnings in the darkness flash'd;
 Scarce could the ropes the swelling sails restrain
 Which urg'd the vessel swiftly o'er the main.

Still with the watch the gen'rous chieftain stay'd,
 Seldom had sleep his wakeful eyelids sway'd;
 Unmov'd he hears the crashing thunder's roll,
 While lightning's flashes spread from pole to pole.
 As o'er the waves he cast his anxious eyes,
 And strove to pierce the gloom which wrapt the skies,
 Th' astonish'd chief beheld a distant light,
 Which faintly twinkled through the shades of night:
 This light Columbus hasten'd to explore,
 And fondly hoped he near'd the wish'd-for shore.
 The storm is hush'd, the clouds are pass'd away,
 Still o'er the waves the vessel holds her way;
 A cry is heard—a thrilling joyous cry—
 That land, the long-sought Western LAND, is nigh!

No rugged cliffs uprear their heads on high;
 No barren rocks, whose summits mate the sky;
 But all was green,—there Nature seem'd to smile,
 Her fairest beauties deck'd the verdant isle.
 Here summer's foliage covers all the hills,
 And murmuring cascades swell the flowing rilla.
 The canvass fur'd, with haste the sailors lower,
 And man the boats to bear them to the shore;
 The well-plied oars asunder cleave the tide,
 And through the waves the vessels gently glide.
 They reach the LAND;—on shore they quickly bound,
 And neighb'ring hills with lengthen'd cheers resound.

Columbia? No. Another robb'd thy fame,
 And to *thy* land, Columbus, gave *his* name.
 Henceforth America, thy star shall rise,
 Thy radiant splendour light the western skies;

Thy realms no more a foreign yoke obey,
 No longer bend beneath an iron sway.
 Spain now no more upon thine offspring wars,
 Nor from thy mines her golden treasures draws;
 But Freedom there her banner has unfurl'd,
 And reigns triumphant o'er the western world:
 Thy regions still continued treasures pour;
 Their riches rival India's boasted store:
 Thy fleets unnumber'd o'er the ocean sweep;
 Thy freighted argosies oppress the deep;
 Thy people, glorious in distinction grown,
 Not Spain, but Britain, as their mother own.

So sang George Christian's muse, a juv'nile bard,
 Who well has shown those difficulties hard
 Which the old seaman had to overcome
 In those dark days of superstition's scum.
 Imbued with sentiments like those display'd
 Above, of ills and omens only made
 By man himself,—implicitly believ'd
 By all his crew, and as the truth receiv'd,—
 We must not marvel that rebellion spread,
 And storms were gathering o'er Columbus' head,
 And which but in a very few days more
 Would have produced what all would much deplore;
 Averted this by Providence above,
 As had Columbus *His* protecting love!
 Alas! that history could say the same,
 His thankless country honour'd not his name!

The present year of grace, called sixty-six,
 Right well deserves the title to prefix
 Disastrous. Amidst hurricanes 'twas born,
 Nursed by the whirlwind, cradled in the storm;
 In wrath and violence of sea and sky,
 And in persistence with a cruelty
 Unknown for more than half a century!
 Alas! our shipping annals do betray
 All this, in characters that shed dismay
 In many homes, where cruel sorrow reigns
 With all its dreadful catalogue of pains!
 Seldom has elemental fury rang'd
 O'er seas so spread, and desolation, chang'd
 From sunny smiles and happiness that knows
 But little of reverses such as those
 That now afflict them. Many do bewail
 The loss of relatives, that will entail
 The keenest pangs of every feeling heart
 That's penetrated by that fatal dart;—

Husbands and wives, brothers and sisters, smart
With sad remembrance, which the lost impart!

Why this dark portrait draw of sixty-six?
Why on this year bad features do we fix?
What say the almanacks? Can we not see
At once the kind of weather 'tis to be?
Let us consult some extra-learned man
T' instruct us on the weather, if he can;—
One skill'd as weatherwise, perhaps he may
Our wants supply, and tell us what to say:
Ask him the weather of to-morrow's sun,
And also (if to him it be all one)
Ask him the weather of to-morrow week,
Or what the almanack in which to seek?
Where is, in fact, that knowledge to be gain'd
Of weather system in the skies maintain'd?

No doubt the scientific man will talk
Most learnedly on this, or that, his walk
Throughout the range of science's wide field,
Where every turn will some fair treasure yield!
Glibly he'll talk of sciences and arts,
And knowledge gain'd in various foreign parts:
With Astronomy, sweet maid, whom he's won
By powers optical, he's never done;
They 'nable him to peer through realms of space
Unknown, the various heavenly orbs to trace,
Their places to define, their movements too,
At all times, and their courses to pursue.
Nay more, e'en comets' duo-centric tracks
To him of easy calculation smacks;
All these he can prognosticate with ease,
Foretell their several places if he please;
Not only now, but e'en for years to come,
As easy as the reckoning of a sum.
Throughout the walks of Science, he, in fact,
Is quite at home, and can apply with tact
Any or all of them at his mere will,
Either his wants or pleasure to fulfil.

And yet there is a scientific word,
Call'd Meteorology, that's seldom heard;
Affects us all, that too he'd not despise,
For if he could, he would be weatherwise;
Yet he who all those things will undertake,
And Nautical Ephemeris can make,
Let him the secrets of the weather scan,
And make weather almanacks if he can!

Not all his depth of knowledge will suffice,
 His mathematics or his science nice,
 Allow him safely to prognosticate
 Or weather to forecast at any date,
 Here or elsewhere. Some four years in advance,
 With much consideration for our wants,
 Are publish'd changes astronomical:
 Where are the meteorological?

Yes; ask him of the weather of to-morrow,
 And he will answer you, with signs of sorrow,
 Where is the book to which I can refer?—
 A book at which no mortal can demur.
 Alas! 'tis not, nor ever will be made,
 It is entirely unknown to trade!

Weather philosophers, there no doubt are,
 False prophets mostly, who can only mar
 By their own prophecies their wisdom new,
 Founded on fiction, and themselves undo.
 "Wind bloweth where it listeth;—dost thou know
 "From whence it cometh—whither it may go?"
 So spake the Saviour of mankind to one,—
 A master of Israel, who came alone
 To Him by night, and to the Jews unknown,
 With questions deep—to erudition prone!

Knew this plain truth, who would be weatherwise,
 Its secrets lie in parts besides the skies;
 Those parts will ne'er be under their control,
 Search as they may, from even pole to pole.

He who the weather would prognosticate
 Must first fix on the wind at any date
 Determin'd,—and also how this shall blow,
 Its force describe, its temperature also;
 Besides, its moisture he must know likewise,
 If he desires to be weatherwise.
 Then, since we know the weather that we get
 Is mostly partial in its visits, let
 All his wisdom its limits well define.
 Of this his "forecast" name its bound'ry line;
 And also, where, on this side or on that,
 The district lies in which he smells a rat!
 How long, how broad, how narrow it may be,
 And whether it includes both land and sea.
 And, should he like precision for its sake,
 He'll add the direction its course will take;
 Then shall we know full well t' anticipate
 The weather we shall have on future date!

Dost think thou'lt manage all these things to know?

* * * *

Go, my young tyro, teach the wind to blow,
 Instruct young pouting zephyrs how to grow,
 Their wings t'expand, which way they are to go;
 The aeronautic artist how to fly;
 Lend wings unto the wayward wind,—then try
 Your cunning hand at meteorology.

To be continued.

THE LIVERPOOL MERCANTILE MARINE ASSOCIATION.

It is about eight years since a few of the leading shipmasters of Liverpool founded the above association, which has been constantly improving and increasing, until its members now enrol the number of fourteen hundred. More satisfactory still is the state of its finances, which now reckon a surplus amounting to £747 16s. 1d. Many of the great merchant princes of the port are its associates, aiding with purse and countenance the objects of the institution.

It is surprising that a club, which should hold a similar position in the merchant navy to that of the army and navy, in reference to these services, should meet with so much opposition and criticism from men who ought to be its chief supporters,—viz. officers of the mercantile marine. But so it is. They find various excuses to offer. "Oh yes," says one; "I will join when I see the thing better managed!" Another cannot see the good of a place where a luncheon even is not to be had; and another wants to know the reason why the benevolent branch has been abandoned. Each of these opinions represents a goodly number; but the gentlemen who hold them would act more wisely by becoming members, and giving the committee the benefit of their own experience and advice; for the infancy of an institution requires all the support which men of experience, cognizant of its wants, can give.

At first sight, it may seem bad policy to come out extensively in presentations of plate or portraits to individuals who have been of service to the association. I am not of that opinion. In our day a certain amount of *éclat* is absolutely necessary at the launching of an undertaking, if it is to attract general attention. Few men are so wholly indifferent to fame, that a testimonial does not become gratifying to their feelings, as a mark of their approval by fellow-labourers and a small return for the zeal with which they have served a good cause through a long series of years without fee or reward. Thus stands Mr. Brocklebank.

The benevolent branch of this institution was, in my opinion, wisely nipped in the bud. At present the association cannot afford to devote any portion of their small ordinary funds to that purpose. Such a

course of proceeding could only be practically beneficial by creating a separate insurance fund; but no economy would enable the managers to ensure the same advantages to subscribers as may be had from any of our great insurance companies.

The speech of Mr. Graves, M.P., strongly depicted the unsatisfactory nature of the inquiries of the Board of Trade into the losses of merchant ships. It is not probable that the shipowners, who are the greatest sufferers from this cause, would raise their voices to condemn these proceedings so strongly, did they not deem that the rights of Englishmen were unjustly infringed. Doubtless, cases of drunkenness and gross neglect should be severely dealt with; but to suspend a man's certificate for an error in judgment, thus depriving him of the means of earning his livelihood, is a piece of tyrannical legislation, for which in these days it is difficult to find a parallel. Do Messrs. Harris and Baker imagine that the victim, while brooding over his disgrace and misfortune in his ruined home, is likely to add to his nautical skill, so as to avoid accidents in future? Such is the only charitable interpretation which can be assigned to their acts. Members connected with the profession on shore suffer no such penalty for their misfortunes, or even crimes. The provision merchant ships his adulterated articles unchecked; the disgracefully bankrupt builder is allowed to commence again, after paying his creditors but a fraction of their claims, often buying in as old iron the new plates, which probably had only been a few days in his yard. There is no penalty of punishment whatever in all these cases. Rather, it may be said, there is a solicitude, a pity, where the evil has been the result of an error in judgment.

Mr. Graves's proposition for an official corrector of charts to be appointed at each of our great maritime ports, has already been suggested in these pages. Such a proceeding would give universal satisfaction, would add greatly to the security of life and property, and would prove a wholesome warning to the vendors of *blue-backed charts*. His remarks on the deterioration of the seaman are the echo of those which were published in one of your recent numbers. Not only are our seamen falling off in quantity, but in quality; and the character of the marine stoker, who now forms an integral portion of the so-called British seamen, is probably lower in the social scale than that of any corresponding class whatever, on shore or afloat. I recently witnessed at a great maritime port the sailing of one of our ocean steamships. When she commenced, by the aid of riggers, to haul towards the dock gates, in order to proceed to sea, only four of the crew (all petty officers) were on board. The remainder were not visible; but the presence of a few wretched porters, with a scanty clothes-bag or straw bed on their heads, showed that several were in the neighbourhood.

Being anxious to see the finale, I went to the dock entrance, where the ship was now held between the piers by ropes. The scene was a perfect Babel of noises, in which oaths and blasphemy rose above the ordinary leave-taking. The officers, with the aid of a few *sobber* men, were endeavouring by persuasion and force to induce the drunken

sailors to come on board, who of course resisted, and showed fight as they were thrust or dragged up the side by main force. The dock-master was anxious to get the ship through, as others were waiting their turn; but his orders passed unheeded till the last of these ruffians was on board. A few drunken good-byes were then shouted from ship and pier, and the noble fabric, doubtless well insured, dashed into the river and to sea. It is not difficult to imagine the situation of the captain and officers of that vessel for the first few hours, should the weather have proved unfavourable.

While such scenes are allowed to pass unheeded, can we feel surprise that respectable people dread to send their sons to sea? knowing what they must endure before promotion as an officer will remove them from such society.

In palliation of the bad conduct of the merchant seamen, both at home and abroad, I must add that they are often badly fed, badly lodged, and worse treated. A dirty closely-confined lower fore-castle, *swarming with vermin*, or a wet exposed top-gallant fore-castle, is generally their habitation. As long as the ship is near the land, the hawse-pipes cannot be properly closed, and therefore every plunge of the bows sends volumes of water through them, wetting the whole of the lower tier of bunks, as their dens are called, and spoiling their scanty store of clothing. So that, when the wearying watch is over, they have neither dry clothes to put on, nor a bed to lie on to rest their worn out frames. To think that men can preserve any self-respect when treated like the beasts of the field that perish is unreasonable. The consequence is, that their habits become like unto theirs,—so filthy, that many totally neglect their persons,—and on arriving in port, when the day's work is over, they either throw themselves down to rest on the deck, or, if they have money, fly to the grog-shop! Often at the launching of a new ship have I seen visitors admiring, and reporters of the press praising, the passenger-accommodation. But who thinks of the sailors? Nobody!

With such accommodation for the seamen of our merchant navy, how can we feel surprised at the great mortality among them in the East or West Indian and African trades?—a mortality (which is known only to the registrar-general) so great in number as to be downright appalling! The Royal West India Mail Company have never been accused of neglecting their seamen; and yet it is a singular fact, that the *Atrato*, which only arrived at Southampton a few days since, and has had to do quarantine at the Mother Bank, should have had thirty-five cases of fever among her crew, *fourteen of which were fatal*, while not an officer nor one of her numerous passengers should have been attacked. Every one thinks it a duty to legislate for proper sanitary arrangements of dwellings on shore;—when will that legislation include those of our sailors on board their ships?

In years gone by, our soldiers in hired merchant transports were not better treated than the seaman. But now they have the best part of the ship to live in, fresh and soft bread, beer, and preserved pro-

visions, on the voyage; while the latter probably never taste one or the other!

No one is more averse to unnecessary and vexatious legislation in mercantile affairs than I am. But the seamen's food, his proper accommodation on board, and consequently his moral position, will never be improved, unless the State interferes to render these considerations inoperative. Many shipowners would rejoice over an improvement, which they cannot now adopt without giving their grasping competitors a ruinous advantage.

In alluding to the proposition of the Royal Society to the Board of Trade, for the purpose of placing the compasses of merchant ships under official supervision, Mr. Klint remarked that they had had "too much legislation lately" on that subject. As the law at present stands, he is unquestionably correct in his statement; nothing can be more absurd than the compulsory swinging of an iron ship whenever the chief officer is superseded, although the captain may have been in her for years, and can produce the most accurate history of his compasses. I would ask any really scientific man, who is acquainted with the difficulties which always attend the hurried swinging of a long ship in a rapid tidal river, if such observations are to be relied on in preference to those which have been carefully registered through a succession of voyages. We all know they are not. Then, why should the shipowner be put to an unnecessary expense and serious loss of time, in complying with a law which is of no use either practically or theoretically.

A certain supervision of compasses would be as beneficial as a supervision of charts, probably more so; for the coast lines and soundings, with a few rare exceptions, never change with dangerous rapidity. The Board of Trade could not keep up, neither is it desirable, a sufficient staff to swing every ship; but they might have an officer whose particular duty should be to inspect and report, for the benefit of all concerned, on the make, condition, and position of the standard compass in all ships. Such a one would stand between the unprincipled maker and the shipowner; and, by judicious advice and unimpeachable accuracy of proceeding, would effect a most important change in this much neglected instrument. To show the loose system which prevails at present in the trade of compasses for ships, a single example will suffice. A. sells a compass to a shipowner, with his name on the centre of the card, purporting that he is the maker. After having been one or more voyages, it is sent to B. to examine, who erases A.'s name and substitutes his own. On returning from another voyage, it may be sent to C., who serves B. as he had previously served A. Thus rendering it impossible to ascertain who really made the compass. We compel the manufacturer of every iron beam and plate to stamp his name legibly thereon;—why is the compass to be thus exempted from a similar law?

Nothing shows clearer the degraded, debased state of the mercantile marine of this country than the speech of Mr. Brocklebank. He,

indeed, is one of the most important of a class, for whose supposed benefit the compulsory law of apprenticeship was abolished; and yet he now distinctly states that the passing of that law has reduced our seamen to so low an ebb, that the maritime supremacy of this country is actually *endangered*. This is a startling assertion, when we consider the high standing in the commercial world of the gentleman who uttered it, and plainly indicates that legislative enactments are in some wise necessary.

We have but to look on the marine of the United States of America to see what a dreadful disregard for human life is induced when no legal enactments check the greed of men on the road to wealth. Her steamboats are blowing up on every river and lake throughout her vast territory, whereby hundreds of human beings are killed or maimed for life. Similar carelessness may be discerned in the build and equipment of her ocean steamships. Can any one believe that a strongly built, well-found vessel would have foundered in the gale which proved fatal to the *Evening Star* and her many passengers? The fact of the few survivors being able on more than one occasion to right their boat, after having been upset, is sufficient proof that neither the sea nor the wind could have been dangerously high, or they must have perished immediately; for the spindrift of an ordinary gale quickly chokes the strongest and most expert swimmer. Her foundering strikingly resembles that of the *London* in many points, even to the fact of her gallant commander calmly announcing to his passengers that all hope of saving their lives must be abandoned, and nothing remained but to die.

The closing scene was, however, far different from that memorable shipwreck; and one almost blurs the page he is writing on, when he thinks of his countrywomen meeting death so resignedly while listening to the exhortations of the good clergyman. There they stood to meet their fate, with their little ones clasped in their arms, showing strong men how to die, as the water gradually rose around them. The parallel to such a scene can only be found in the gallant regiment who went down in line off the Cape, with bayonets fixed, on the decks of the *Birkenhead* some fourteen years ago.

MERCATOR.

OUR MERCHANT SHIPPING.—*Deep-lading.*

We find in a recent Colombo paper an account of the marvellous escape of two seamen, forming a part of the crew of the British ship *Scoresby*, of London. The escape of these men is one of those remarkable adventures which our Merchant Service contributes to its history now and then, that we consider well worthy of its place in our pages. But it is another illustration of that system by which it is reduced to its present forlorn and unsatisfactory condition.

When that panacea for all its evils, called insurance, is tolerated as it is, under which the most appalling system of fraud may be carried on, as is now under the investigation of the Lord Mayor's Court, previous to being turned over to the course of justice, of what use, it may be asked, is the code of laws of the mercantile marine, all of which are set aside? But among those laws, one, which enacts that a British ship is not compelled to carry more than one-third of her crew as British seamen, almost robs the ship of her name as British at all. She is no longer an English ship when two-thirds of her crew cannot probably speak a word of English. Oh! but they can learn, it has been said; and the loss of our merchant ships is to be risked, not only to the foreigners who may form two-thirds of their crews not being sailors, but by their not understanding a word of an order when they hear it. It is a great pity that those who originate such laws, who draw them up in acts of parliament without one atom of experience which would teach them their effects,—it is a great pity, we say, that these men are not present in the same ships for which they are legislating, that they may find out by dire experience how easily the loss of a ship may be brought about by such means; and well it would be if such men were lost along with them.

How many of such men had the *London* on board,—another specimen of British merchant ships. But the *London* was lost from overloading, besides the dangerous character of her construction,—so dangerous as to be entirely condemned by some. But the law permits such proceedings; and a ship may be sent to sea overloaded, undermanned from sheer imbecility of the majority of her crew for their duty as seamen,—as our huge lists of wrecks daily testify.

But here is the story of Charles Dunn and George William Dickson, two able seamen belonging to the ship *Scoresby*, of London, who were picked up by Capt. Lemon, of the ship *John Stewart*, on the 17th of July in lat. 33° 19' S. and long. 38° 42' E. We give the statement as written by Capt. Lemon, who is well known in Bombay. He says:—

“These poor men were so excited when I got them on board, and so truly thankful for being rescued from such a dreadful death as was staring them in the face, having had no water for three days, that I sent them among our men, as tea and some refreshments were ready for them. I therefore asked them but few questions, but allowed them to have some rest; after which, their thoughts would be more collected.

“It appears that the *Scoresby* sailed from Colombo about the 25th or 26th of May: they did not exactly remember the date [26th of April,—Ed. C. O.] The ship was deeply laden, drawing 20 feet 8 inches; her cargo consisting of coffee in casks and bags, coir yarn, and cinnamon. Her cabins were filled with cargo. All her provisions were under the top-gallant fore-castle; water casks on deck, with a large quantity of timber; and they considered the ship much too deeply laden for her size, and more especially for going round the

Cape of Good Hope in the winter season. She was a first-class ship, tight, staunch, and strong, as far as their judgment went. They shipped on board of her at Calcutta and came to Bombay, and hence went to Colombo.

"Everything went on very well until the 20th or 21st of June, when somewhere off the Cape they experienced a very heavy gale of wind, and the ship being so deep 'made very bad weather of it,' and would not lay to, falling off in the trough of the sea; yet the captain would not keep sufficient sail on her to prevent this. 'To be kept steady,' say they, 'she would have required the main topsail close reefed on her, which would have been a great assistance; but the captain would only have the reefed mizen on her, with the head hauled down; and this was not sufficient for such a ship.' The captain got a hawser out on the bow, with fenders attached to it,—but this had no effect on her; and from her tumbling about so much in the hollow of the sea, her bulwarks got smashed, and some of the water tanks washed overboard.

"Seeing all this, the captain was told by the chief mate that they had better set the main topsail, but the answer was 'Shut up;' and the master still persisted in having only the reefed mizen on her. From her labouring and straining so heavily in such a sea, she began to make water; the pumps, which were worked by a fly-wheel, were set to work, but the crank shortly gave way. The carpenter then rigged a 'wee-wee,' and we could not exactly tell the water the ship was making, but could easily pump her out each watch. But at last the pump-boxes were continually getting full of coffee,—no doubt some of the bags were adrift. We had to draw the boxes very often to clean them. At last the pumps themselves got choked, and we got them up, but had some little difficulty in getting them down again. We succeeded at last, and put them in their places again within an inch.

The carpenter was then asked by the captain how much water was in the ship. The reply from the carpenter was six feet; but one of the men, who had been down in the pump-well all the time, fixing the pumps, said there was nothing of the sort, and that we could soon pump her out; but the captain persisted that there was more water in her than that, and kept calling out that there were 11 feet in her, and that we must leave her, and look sharp and save ourselves the best way we could. Said he, 'Go, and get your breakfast,—it is the last you will have; and be sharp, or she will go down before you have finished.'

"Everything then was in confusion,—one running here, another there,—no one knew what to do. No provisions or water were thought about to go into the boats; neither was there a breaker or small cask in the ship that could be put into them. No one of the crew was told off who should go in this boat, or who in that; yet the captain was calling to 'get the long boat.' But that was more easily said than done. The long boat had never been used for anything else but to put stock in, and had been fitted up for that purpose, and had a house

over her with a scuttle on the fore part. That was soon knocked off, and we got the iron off the gunwale that secured her; but she was so blocked up with lumber and tanks that it was some time before we could move her.

“At last we succeeded; but she was being got out in such a lubberly manner, with a heavy sea on, that one of the men called out, ‘You will have the boat stove; hold on.’ The man Dunn was in the boat when hoisted up and in the tackle; but as there was no one to lead the men, it was ‘lower away;’ and the boat was scarcely in the water before one of the planks was stove in. The man Dickson seeing that Dunn was powerless in the boat by himself, and could not keep the boat off the ship’s side, and unhook her as well, jumped into the boat and cut the tackle falls away, and it was with difficulty they could get astern. They threw two or three buckets into her, she being then half full of water, some old canvas, nails, hammer, an old sail, an oar, and boat-hook; and in pushing the boat off the mizen channels nearly smashed her altogether, and they broke the only oar that was in her in trying to fend her off the side. They called out to ‘slack away the painters’—these were two large coir ropes—when some one called out (they fancied it was the captain’s voice), and in a short time they found themselves adrift from the ship altogether.

“They drifted some distance from the ship, having to bale her dry, and get some of the old canvas nailed on where the plank was stove in, to keep her afloat, as they fully expected that relief would be sent them, seeing that they had the largest boat in the ship; but, finding there was no relief sent them, and as they had neither provisions nor water in the boat, they strained every nerve to get back to the ship if possible; and, what with the broken oar and a piece of plank that was in the boat, they pulled and paddled until dark,—but to no purpose. They then, with the broken oar and a piece of bamboo that was in the boat, contrived to make a mast. Fortunately there was a ball of spun yarn in the boat; and, with the boat-hook and a piece of wood, they contrived to make a yard, and bent it on to the sail that was hove into the boat.

“With this sail the boat went ahead; yet they could not see the ship, the night was so dark; but they ‘got hold of a star,’ which they thought was near the direction of the ship, and almost gave themselves up to despair. One of them, at last, thought he saw something ‘bobbing above the water in the horizon,’ and thinking it might be some of the other boats, they went direct for it, the wind favouring them. Before dark they could distinguish it was a ship; but did not know at that time that it was their own again. At midnight, almost famishing for a drop of water, they got up alongside of her, and to their great joy found it was their own ship again. They hailed and got no answer, but saw the other boats had left the ship; and from their getting no answer, they supposed that the crew had also left her. They lay by her all night, afraid to board her; lest, with such a swell on, and the night so dark, the boat might get smashed. At daylight they tried to

get on board to leeward, but could not manage it, and the boat got under the dolphin-striker, when they thought 'it was all up'—that it would certainly go through the boat; but fortunately they got clear, though not before it had injured the man Dunn.

"At last they boarded the vessel on the weather side, and Dickson got on board, Dunn remaining in the boat to keep her off the ship. Dickson found that there was not a soul on board, the ship's rudder gone, and things strewed about everywhere. One of the first things he saw, near the cabin door, was a bottle of gin. He went to the fore-castle, to see if any of his clothes were there, or the other men's, but found all taken away. He went round the cabins, and there found some clothes, which he bundled up. He then got biscuit, salt pork, matches, and a few other things;—but what was he to put water in? At last he found some pickle jars, which held about four gallons, and with some buckets got them filled and into the boat. They could not find anything in the shape of a mast for their boat, all small spars having been taken away; but they got some old canvas and rope, a saw, some copper, with nails.

"As the weather was fine, they stayed by the vessel four days, thinking a ship might pass them, as they could more easily see from the ship than from a boat. They kept in their boat at night; but, as the weather was coming on to blow again, they thought they might lose their boat, and have no chance of being saved. They therefore made up their minds to leave, and trust to Providence; and having found a compass on board, they lashed it to the after thwart and made sail, steering North-east, till they were picked up, fourteen days after leaving their ship, having been three days without water. They said they did not sound to see what water was in the ship, but saw no difference in her appearance from the time they got adrift from her. In their opinion, she might easily have been got into port before she lost her rudder.

"When leaving Colombo they were twenty-one in number:—Capt. Aicken [Hackland,—Ed. C. O.]; Mr. Purdy, first officer; Mr. Aicken (captain's brother), second officer; steward, carpenter, cook, ten able seamen, four ordinary seamen, and one passenger, name unknown. [Mr. Marmaduke Tatham,—Ed. C. O.] The ship belonged to Mr. Lidgett, of London.

"They say the captain was fond of liquor, but they 'never saw him but what he could stand all right—never laid down to it.' On the morning he ordered the boat to be got out and to leave the ship, 'he had got a good skinful—as much as he could carry.'

"This," adds Capt. Lemon, "is all I could get out of them."

It is clear from the above that the *Scoresby* was too deeply laden. And this, we suppose, must be taken as another effect of deep-lading,—to say nothing of the captain "shutting up" the mate's recommendation, or his determination to let the ship remain at the mercy of the sea, without giving her sufficient sail even to steady her. Whether the other boats, containing the rest of the crew and officers, have been

saved, we have not learned,—perhaps our readers can inform us; but we shall conclude our present remarks with the following important observations from a Bristol journal, on the general condition of the mercantile marine of this country.

“ For some time past persons acquainted with maritime affairs have been aware that a remarkable revolution is taking place in our mercantile marine. The commerce of the country increases year by year. Notwithstanding the dreary predictions which were uttered by ship-owners when the navigation laws were condemned, British bottoms have more than held their own in the competition with ‘the foreigner,’ and never was there a time when the ‘meteor flag of England’ waved more proudly than it does to-day. But when we turn from the ships to the crews, we find that an extraordinary change has taken place during the past fifteen years. English shipping has increased in a wonderful manner; but, instead of English seamen having increased in proportion, their number has gradually and steadily declined. Up to 1852 the presence of a foreign sailor on board one of our merchantmen was a remarkable occurrence. At the present time there is scarcely a vessel which leaves an English for a foreign port in which a considerable portion of the crew are not natives of another land. Every year, we are told, eight per cent. of our seamen leave the service altogether, while not one-half that number of lads enter it; and the difference is of course made up by foreigners and landsmen.

“ The matter is at length becoming of the gravest importance. It is now no uncommon circumstance for the captain of a large vessel, whilst engaging a crew, to find himself without a single English ‘able seaman,’ and to be forced to make up his number from the ‘loafers,’ about the docks and a horde of foreigners of every race and tongue. The consequences to the shipping interest cannot but be serious. It is of course possible, by insuring a vessel to its full value, to cover the risks arising from bad seamanship and deficient means of communication between masters and men. But if disasters multiply under these conditions, as is only too certainly the case, underwriters will make the necessary addition to their charges, and the expenses of the shipowner in his struggle with foreign bottoms will be continually pressing on him with greater severity.

“ But it is in a national point of view that the question appears in its most alarming aspect. Not merely the prosperity, but the existence of this nation depends on its might upon the sea. If Goldsmith were right in extolling the advantages of possessing a ‘bold peasantry,’ one might be assuredly justified in claiming national sympathy for those brave and generous men who have contributed so much to English power and splendour, and without whose aid our name and our majesty would be at any time the sport of watchful foes.

“ It would be reasonable to conclude, without even inquiring into the subject, that our sailors were not abandoning their profession without a reasonable cause. In spite of all the persuasions of tender parents and all the lessons of experience, many of the youth of this

island betake themselves to the sea with an ardour and determination probably unparalleled in any other land; and the abuses prevailing in the merchant service must be indeed serious when we find that the number of desertions from it is larger than the number of its recruits. We have at length obtained an insight into the grievances of which sailors complain. At the meeting of the Social Science Congress last month, two well-known seamen, Capt. Toynbee, who has been thirty-three years in the merchant service, and Commander Dawson, R.N., entered into lengthy explanations, and the reader will soon see that the declining condition of the service is only too well accounted for.

“According to the authorities just referred to, who state that their views are supported by many other officers, the manner in which the British seaman is treated on shipboard is disgraceful to the age. A few illustrations will suffice to confirm their statement. Take, in the first place, the mode in which men are lodged,—a matter of the utmost importance, considering that on the average a sailor is at sea nine months out of twelve, and that decency and morality are largely dependent upon the manner of living. Commander Dawson says that, in the majority of vessels that leave our ports, the condition of the place reserved for the crew is simply shocking. In many cases it is a shed on the upper deck, and is neither wind-tight nor water-tight. ‘The hawse-holes for the cables play like a pair of fountains into this home, whilst the roof rains salt water through the seams whenever there is a good breeze. Thus in high latitudes the men have seldom a dry bed or a dry suit of clothes, and their *home* is misery itself.’

“Even this, however, is not as bad as the den allotted to them in another class of ships—a dark place in the bows of the vessel. ‘It has no light,’ says Mr. Dawson, ‘no ventilation, no tables or stools; the bulk-head separating it from the cargo admits any smells or insects it may engender. Its only furniture is the tiers of bunks to sleep in and the seamen’s boxes, yet there is barely room for the inhabitants to stand upright. One-half, therefore, have their meals at a time, pigging on the ground, or crouching in their bunks; and whenever the whole attempt to shelter themselves under the same roof, some must sit in the bunks to make room for the others. Yet this is the sailor’s home for nine months in the year, and for all the best years of his life.’

“So much for lodging. In reference to provisions, the commander declares that bad and insufficient provisions and bad water are ‘the rule’ in the merchant service; and his statement is only too well confirmed by the reports of the Board of Trade. For the last sixty years that terrible scourge of the sea, the disease of scurvy, has been unknown in the royal navy. No one ever hears of a master, and seldom of a mate, in the mercantile marine, being afflicted with it. Five or six lines of ships trading from London and Liverpool to the East Indies, China, Australia, and the Western world, have always escaped from its ravages. Yet the disease is still fatally prevalent amongst ordinary seamen, and is actually increasing in severity, although an

infallible remedy ought to be always at hand. The cause of the disorder is undoubted. It arises from a weakened physique,—as the latter is due to the wretched food and water of the ship. ‘Hard salt beef, half rancid salt pork, with hard biscuit, varied with flour mixed with salt beef fat,’ is, we are told, the unvaried diet for hale and sick; and one can hardly be surprised if the young men of the present generation, brought up as they are upon a copious and generous diet, revolt at such treatment. Even if scurvy were not certainly induced by the miserable diet, seamen may be excused for quitting a profession whose members are treated with a coarseness at which paupers and even convicts would revolt.

“These illustrations merely indicate the general condition of the seaman. Lime or lemon juice is an unerring cure for scurvy; but many shipowners, to save a few shillings, send on board a counterfeit liquid, concocted principally from tartaric acid, and many sailors thus perish. A very scandalous abuse is that by which, when a sailor returns from a voyage, he is thrown on shore without a penny in his pocket, although several months’ wages are due to him. This system prevails at all our ports, the excuse being that the accounts of the vessel cannot be made out for a few days; and its consequence is to throw thousands of poor fellows into the hands of crimps and thieves, from whom he rarely escapes until the whole of his earnings are pledged to them.

“We might go on to point out other evils arising from the negligence and indifference of ship owners and ship captains; but sufficient has been already done to confirm the worst suspicions of landsmen. We ought to add that Mr. Mark Whitwill, of this city (Bristol), whose philanthropic exertions on behalf of the seafaring community are well known in the district, attended the Social Science Congress, to confirm all the charges which Mr. Toynbee and Commander Dawson had laid against the shipping interest. As to the forecables of ‘too many merchant ships,’ and the provisions supplied to the crews, Mr. Whitwill assured his hearers that ‘they could not be worse.’ Our fellow-citizen further succeeded in pointing out the most eligible means of relief. Mr. Whitwill believes that the shameful treatment of the crews is owing to the competition of miserable and scampish ship-owners, who ‘prefer cheapness to men’s health and lives;’ and he has no hope of reformation until the law makes a change compulsory. He admits, however, that merchant captains often show a flagrant indifference to the interests of their crews, and it is this notorious fact which makes the question so difficult to deal with. But it is plain that something must be done forthwith; and we are glad to learn that the Board of Trade is about to be appealed to in the matter.”

ROYAL NATIONAL LIFEBOAT INSTITUTION.

On Thursday, the 4th of October, a meeting of this institution was held at its house, John Street, Adelphi: Thomas Chapman, Esq., F.R.S., V.P., in the chair. There were also present—Sir F. Outram, Bart., Admiral W. H. Hall, C.B., Sir E. Perrott, Bart., Admiral Gordon, Colonel Palmer, W. H. Harton, Esq., Admiral M'Hardy, Capt. De St. Croix, and Richard Lewis, Esq., secretary of the institution.

The minutes of the previous meeting having been read, a reward of £8 10s. was granted to the crew of the institution's lifeboat, the *Isis*, at Hayle, for going off in a strong gale of wind and heavy ground sea on the 10th of September, and rescuing the crew of eight men of the brigantine *Nicholas Harvey*, of that port, which vessel had stranded on Hayle Bar. A reward of £6 was also voted to the crew of the Porthdinjaen lifeboat, for putting off in reply to signals of distress, and bringing ashore the crew of five men of the brigantine *Columbia*, of Carnarvon, which was in a very dangerous position near the rocks in Porthdinjaen Bay, having parted from one of her anchors. A reward of £7 was likewise granted to the crew of the Blakeney lifeboat, for being instrumental in bringing safely into harbour a pilot coble and her crew of three men during a strong wind on the 12th of August. Rewards amounting to £34 were also voted to pay the expenses of the lifeboats of the institution stationed at Blackpool, Lytham, Shoreham, and North Deal, for various services during the month of September.

The thanks of the institution, inscribed on vellum, were ordered to be given to Mr. Henry B. Gawler, R.N., inspecting officer of coast-guard at Ballyheige, county Kerry, and £1 each to three of his men, in acknowledgment of their services in wading into the surf with life-lines round them, and effecting a communication with the barque *Mary Anne*, of London, which had gone ashore during a strong gale and heavy sea on the 11th of September. By these means twelve out of fourteen of the crew of the vessel were rescued. A reward of £2 10s. was also granted to some men who assisted the coast-guardsmen in hauling the shipwrecked crew ashore on the occasion.

Various other rewards were also voted to the crews of shore boats for saving life from shipwreck on our coasts.

It was reported that the inhabitants of Bristol and Clifton had, through Miss Hill, Mr. E. Austin, Mr. E. Hancock, and gentlemen belonging to the Bristol Histrionic Club, contributed to the institution the cost of a new lifeboat, to be stationed at Lossiemouth, N.B. Mr. Robert Taylor Heape, of Rochdale, had also collected £425 from amongst the residents of that town, to defray the expense of a lifeboat to be stationed at Polkerris, near Fowey, Cornwall. A contribution of £360 had also been received from E. P. S., to pay the cost of a new lifeboat for Barmouth. Miss Hamill, of Kingstown, had also forwarded

to the institution a donation of £50, by direction of her brother, the late Mr. James Hamill.

The institution had during the month of September forwarded new lifeboats to Queenstown, Poolbeg, and Brixham: the Railway and Steam Packet Companies kindly gave them a free conveyance to their destinations. The Poolbeg lifeboat, the *G. V. Brooke*, was exhibited on the Adelphi Terrace, London, before being sent to her station, and was publicly launched at Dublin on the 20th of September. The City of Exeter lifeboat, for Brixham, was also taken to Exeter on the way to her station, when a grand demonstration took place. The London Sunday Schools lifeboat was also publicly presented to the institution, on the 25th of the same month, at the Agricultural Hall, Islington, in the presence of upwards of 24,000 of the Sunday-school children. Payments amounting to £3,250 were ordered to be made on various lifeboat establishments.

It was reported that the society was now collecting estimates from different places for the construction of some safety fishing-boats. These boats are intended to become practical specimens of what may be termed life-saving fishing-boats; and it is hoped that, after sufficient trial, other boats on this model may be built by fishermen on various parts of the coast of the United Kingdom. Thus a permanent improvement would be established, which might lead to the saving of many lives on occasions of such boats being overtaken by gales of wind when pursuing their avocations at long distances from land.

A working drawing of a new lifeboat built at Port Adelaide, South Australia, on the plan of the institution, was brought under the notice of the meeting by the marine board of that place.

Reports were read from the inspector and assistant-inspector of lifeboats of the institution, on their recent visits to different lifeboat stations on the English and Irish coasts.

On the 1st of November, a meeting of this institution was held at its house, John Street, Adelphi: Thos. Chapman, Esq., F.R.S., V.P., in the chair. There were also present—Sir Edward Perrott, Bart., Capt. De St. Croix, W. H. Harton, Esq., Colonel Palmer, Capt. J. R. Ward, R.N., and Richard Lewis, Esq. secretary of the institution.

A reward of £10 was granted to the crew of the institution's lifeboat *Sir George Bowles*, stationed at Howth, for rescuing a boy from the smack *Favorite*, of Peel, Isle of Man, which had gone ashore off Baldoye, two or three miles from Howth, on the 17th of October. The master and crew of the smack had afterwards written a letter, expressing their deep gratitude for the important services rendered to them under Providence by the lifeboat's crew, just as they had abandoned all hope of being saved.

A reward of £7 18s. was likewise voted to the crew of the *Civil Service* lifeboat at Wexford, for going off during stormy weather to the barque *Voluna*, of Liverpool, which had gone ashore on the Long Bank. They found the vessel abandoned, but the lifeboat succeeded

in saving a coastguard officer and four of his men, who had just boarded the wreck, and whose boat had been lost while doing so.

Rewards amounting to £28 were also voted to pay the expenses of the lifeboats of the institution stationed at Appledore, Wexford, and Broughty Ferry (Dundee), for various services during the month of October.

The silver medal of the institution was voted to Mr. Bartholomew Stephenson, of Boulmer, Northumberland, in acknowledgment of his general gallant services in the Boulmer lifeboat, of which he had been the coxswain for many years past.

The silver medal of the institution and £2 were also voted to Mr. T. Jones, master of the steamtug *Ely*, and £8 to his crew, and the thanks of the institution to Mr. Nichol, tide surveyor, in admiration of their noble and skilful conduct in saving nine men from the sloop *Wool Packet*, of Dartmouth, which, during a gale of wind, was wrecked on Bideford Bar a few weeks ago. It appears that the crew of the vessel had abandoned her, and that two boats' crews, consisting of nine men, afterwards boarded the wreck, with the view of trying to get her off the bar; but when the tide rose, the sea broke heavily over the vessel, and the men hoisted a flag of distress. The steamtug *Ely* now hastened to the rescue against a strong tide and wind. Before, however, she could get near the wreck, the nine men were driven to seek refuge in the rigging. The sea was breaking fearfully in all directions, and the vessel rolling from side to side; but Capt. Jones and his crew bravely proceeded through the broken water at the risk of their lives and vessel, and succeeded in the first attempt in saving three of the men. This was all that they could then accomplish, for the sea was now breaking so furiously over the wreck that the steamer was driven away; and the same want of success attended a second and a third attempt to approach the wreck. The captain then backed astern, and with consummate skill and boldness actually placed the steamer directly alongside of the vessel's rigging, with her bows over the deck of the wreck, thus saving the six men in the rigging; and within the short space of two minutes the wreck had actually disappeared, and was not seen afterwards. But for this bold and successful service nine widows (for the nine rescued men were all married) and forty fatherless children would to-day be lamenting the loss of husbands and fathers. The lifeboat of the institution stationed at Appledore immediately put off on seeing the poor fellows in the rigging of the *Wool Packet*; but before she could reach the wreck, the steamer which was in the neighbourhood had performed the daring service. The expense to the institution of the lifeboat expedition was £10 3s.

It may be added that the National Lifeboat Institution since its formation has contributed to the saving of 15,700 lives from shipwreck; and who can tell the number of women and children who, in the absence of these great and national services, would have become widows and orphans?

Various other rewards were also voted to the crews of shore boats, for saving life from shipwreck on our coasts.

During the month of October a legacy of £50 had been received by the institution through its Newcastle branch from the executors of the late Mrs. E. Neilson, of Newcastle, county Down. Miss Ellen Goodman, of Eversholt, Bedfordshire, had also left the institution a legacy of £600, to pay for a lifeboat, its equipment and transporting carriage.

New lifeboats had been sent during the same period to Lossiemouth, N.B., and to Burnham, near Bridgewater. The Lossiemouth lifeboat, which was presented to the institution by the Bristol Historic Club, was exhibited in Bristol on the way to her station, and a grand demonstration took place in that city on the occasion. The Burnham lifeboat, which was the gift of the residents of Cheltenham, was also taken through that town, when the boat was formally presented to the institution by Mr. Schreiber, M.P. A demonstration likewise took place at Burnham on the arrival of the new boat. The several railway companies, as usual, kindly gave the boats a free conveyance to their destinations.

Payments amounting to £2,100 were ordered to be made on various lifeboat establishments. The institution decided to place a new lifeboat at Portmadoc, in lieu of an older boat there at present. John Ashbury, Esq., of Openshaw, had, through the Manchester branch of the institution, undertaken to defray the cost of the new boat, and to name it after his late father.

It was reported that the gas companies at Sunderland and Teignmouth had kindly laid on pipes to the lifeboat houses of the institution in those towns, and had undertaken to supply, free of charge, the gas for the use of the stations.

The thanks of the institution, illuminated on vellum, were ordered to be presented, on their retirement from office, to A. A. Ranken, Esq., Arthur Owen, jun., Esq., Henry Rodd, Esq., and J. Kearney White, Esq., in acknowledgment of their valuable co-operation in the management of the Glasgow, Teignmouth, Tees Bay, and Valentia lifeboat branches of the institution.

Richard Thornton West, Esq., and Mrs. West, had given to the institution the whole cost of the lifeboat station about to be formed near West Wittering, on the Sussex coast.

The Government of Bombay had requested that two large new lifeboats might be built, like those of the institution, and under its superintendence, by Messrs. Forrest and Son.

The meeting passed a very cordial vote of condolence to the family of the late Dean of Norwich, who had been for many years past a most zealous and valuable coadjutor of the institution on the Norfolk coast. The Dean's late father, the first Lord Exmouth, the distinguished admiral, took a deep interest in the formation of the National Lifeboat Institution.

Reports were read from Capt. Ward, R.N., the inspector of lifeboats of the institution, and from Capt. D. Robertson, R.N., its assistant inspector, on their recent visits to different lifeboat stations on the English and Irish coasts.

THE WRECK REGISTER AND CHART FOR 1865.

With a Chart.

A foreigner, looking at the Wreck Chart of the British Isles, might not unnaturally conceive that a very large proportion of the ships that pass to and fro from our ports every year were wrecked on our shores. When, however, he came to be informed that the number of vessels that cleared outwards and entered inwards last year alone, from the different ports in the United Kingdom (without counting vessels employed solely as passenger ships), was 409,255—that they represented a tonnage of 65,231,034—and that the value of their cargoes must be estimated at not less than £500,000,000—the said foreigner would probably be much surprised, after all, to learn that not one per cent. of this great multitude of vessels was wrecked either in our narrow seas or on our coasts.

Such, however, are the facts of the case; and it is not for us to justify even the loss of this relatively small amount of valuable property. On the contrary, we are amongst those who contend that, as education advances, and careful and thoughtful habits are instilled into sailors, this percentage of wrecks must diminish.

Considering the increasing trade of this country every year, and the consequent increase of shipping frequenting our shores, the general average of marine disasters reported to the Board of Trade will probably continue to augment proportionately from year to year.

Again, it should be remembered that the number of wrecks in a year cannot fail to be increased or diminished, according to the prevalence or absence of gales of wind like those which proved so disastrous to the ill-fated ship *London* in January last, and to so many other vessels which were in such comparatively safe anchorages as Torbay affords, where it had been supposed the whole British navy might have ridden in safety during the fiercest storms.

Thus, in October 1859, there was the *Royal Charter* gale, and a loss of 343 ships. In January, February, and November, 1861, there were north-east and south-easterly gales, which added 460 to the number of casualties. In January, October, and December, 1862, there were westerly gales, with upwards of 540 casualties; and in January, March, September, October, November, and December, 1863, there were westerly gales, with 930 casualties. In November, 1864, there were 264 casualties, with the wind chiefly in the south-south-east and south-west; but, owing to the absence of any special gales of remarkable duration and violence during the previous part of that year, the total number of casualties in it was 274 below the number in 1863; and it is worthy of remark, that the whole number of casualties, other than collisions, reported in 1864, was less than the number reported in any year since 1858. The annual average for the ten years ending 1865, including collisions, is,—for total losses, 505, and for

partial losses, 889; as, against this, the numbers for 1865 are,—for total losses, 540, and for partial losses, 1,116.

From the carefully-compiled Wreck Register of the Board of Trade, we find that the total number of wrecks and casualties, from all causes, on the coasts of the United Kingdom and in the surrounding seas, reported in 1865 is 1,656. The number reported in 1864 was 1,390. The corrected annual average of the eleven years, from 1855 to 1865 inclusive, is 1,372. It should, however, be mentioned, that the wrecks in 1864 were below the average of the preceding five years, although they were above the corrected average of the last ten years.

The number of ships lost or damaged in the 1,656 casualties reported in 1865 was 2,012, representing a registered tonnage of upwards of 377,000 tons.

Of these 2,012 ships, 1,690 are known to have been ships belonging to Great Britain and its dependencies, with British certificates of registry; and 238 to have been foreign ships. Of the remaining 84 ships the country and employment are unknown. Of the British ships, 1,198 were employed in the British coasting trade, and 492 were employed in the (over sea) foreign and home trade; and of the foreign ships, 11 were employed in the British coasting trade. Thus the number of British vessels wrecked continues to maintain a sad pre-eminence in the work of destruction; and we regret to add, as a natural result, in the sad loss of life.

Of the total number of casualties (1,656) reported in 1865, 354 were collisions, and 1,302 were casualties other than collisions. Of these 1,656 casualties, 540 resulted in total losses, and 1,116 in partial damage, more or less serious.

We find that 470 total losses took place from causes other than collisions: 245 only were caused by stress of weather; 99 were caused by inattention, carelessness, or neglect; 38 arose from defects in the ship or in her equipments (and of these 38 no less than 30 appear to have foundered from unseaworthiness); and the remainder from various other causes.

Again: of the 832 partial losses other than collision, 501 were caused by stress of weather, 137 arose from carelessness, 48 from defects in the ship or her equipments, and the remainder from various causes which we believe to be, in the majority of cases, obviously preventible if ordinary care and skill had been shown.

It is for those who feel an interest in preventing shipping disasters, to ponder over these startling facts, and to continue to direct public attention to this important subject. Our object is, to some extent, accomplished in thus calling general attention to it; but our main purpose at present is to make a few remarks on the distressing loss of life which these various and inexcusable causes of disasters inevitably produce.

We find that the total number of ships reported to have foundered, or to have been lost on our coasts from unseaworthiness, in ten years, is 423; and that the number of casualties caused through unseaworthy ships, unsound gear, &c., and resulting in partial damage, in the same

time, is 499. With these 423 vessels sank, probably, one million sterling's worth of property, and several hundred valuable lives.

In 1865, there were 98 casualties to fishing smacks and vessels. There can be no doubt that the weather must have been most severe to have produced such havoc amongst our fishing craft; but, even in these cases, the indications of handy trustworthy weather-glasses, or barometers on the plan of those so usefully employed by the National Lifeboat Institution at nearly all its numerous lifeboat stations, might probably have saved many a fishing vessel and her hardy crew from the terrible fate which overtook them, not without unmistakeable atmospheric warnings, during the fearful gales of last winter.

But excluding these 98 fishing vessels, the number of ships employed in the regular carrying trade that have suffered from wreck or casualty during the year is shown to be 1,914. If this number be again subdivided, it cannot fail to be observed that more than half of it is represented by the unseaworthy, over-laden, or ill-found vessels of the collier class, chiefly employed in the coasting trade. In corroboration of this remark, the reader has only to cast a glance at the accompanying Wreck Chart. It will be observed that the North-east coast is, as usual, completely covered with the sad results, in too many cases, of unseaworthy, over-laden, and ill-found vessels in the coal trade.

The wrecks are thus specified in the Returns to the Board of Trade:—

	Vessels.	No.
Fishing smacks	.	98
Colliers laden	.	535
Colliers in ballast	.	140
Metallic ores	.	150
Stone ores	.	109
Ships with other cargoes, and other ships in ballast	.	980
	Total vessels	2,012

It is a remarkable fact, that, taking the past seven years as our guide, we find that casualties, to comparatively new ships, continue to bear a very high proportion to the whole number of disasters; thus:— 908 casualties happened to nearly new ships, and 1,701 to ships from 3 to 7 years of age. Then there are casualties to 2,087 ships from 7 to 14 years old, and 3,477 from 15 to 30 years old. Then follow 1,267 ships from 30 to 50 years old. Having passed the service of half a century, we come to the really old ships,—viz. 280 between 50 and 60 years old; 102 from 60 to 70; 48 from 70 to 80; 14 from 80 to 90; 6 from 90 to 100; and 4, 101 years and upwards. The ages of 3,002 are unknown. The state of rottenness and the want of repair of some of the ships above 20 years old often call for remark. Even at the age of 25 to 30, it sometimes happens that a ship is so rotten as to fall to pieces immediately on touching the ground, without giving the crew the slightest chance of getting out the boats. In one case, an old ship, a foreigner, which went to pieces as soon as she

touched the ground, it was found that her seams had been payed with clay and red ochre, to keep the water out.

It seems to us that the Merchant Shipping Act has failed entirely to control this sad state of things; and, indeed, its authors contend that the provisions of the Act never contemplated touching them; for they argue—and there is much force in their observations—that the common law of the land should be brought into operation to compel shipowners, like all other owners of property, to be answerable for wilful or overt acts of carelessness.

Of the 2,012 vessels lost or damaged in 1865, 82 were rigged as ships, 130 were steamships, 542 schooners, 419 brigs, 187 barques, 187 brigantines, and 196 smacks; the remainder were small vessels rigged in various ways. Of the 2,012 vessels referred to, 902 did not exceed 100 tons burthen, 793 were from 100 to 300 tons, 210 were from 300 to 600 tons, and 107 only were above 600 tons burthen.

From the table showing the parts of the coasts on which the casualties happened, it will be seen that, as usual, the greatest number occurred on the East Coast. The numbers are as follow:—East Coast, 868; South Coast, 187; West Coast, 386; N.W. Coast of Scotland, 46; Irish Coast, 146; Isle of Man, 15; Lundy Island, 3; Scilly Isles, 5.

As regards the loss of life, the returns show that the number lost from shipwreck on or near the coast of the United Kingdom, in 1865, was 698. These lives were lost in 164 ships; 124 of them were laden vessels, 83 were vessels in ballast, and in 7 cases it is not known whether the vessels were laden or light: 131 of these ships were entirely lost, and 33 sustained partial damage. Of the 698 lives lost, 275 were lost in vessels that foundered, 53 on board vessels in collisions, and 335 in vessels stranded or cast ashore. The remaining number, 35, were lost from various causes, such as being washed overboard in heavy seas, by explosions, &c. The loss of life in 1864 was 516, which was less than the number in any year since 1855. In that year (1855) the National Lifeboat Institution began to take most active steps to provide our coasts with lifeboats, having, during the previous thirty years, struggled hard for support to carry on its great and national work on our shores; but in that year the late Capt. Hamilton Fitzgerald, R.N., left the society the munificent legacy of £10,000. Its committee most wisely and promptly decided to spend the whole of the money in placing new lifeboats on the coast. Since that period the institution has contributed to the saving of 5,758 lives from shipwrecks. How many of these persons, in addition to their wives, children, and other relations, have reason to bless the name of this and many other benefactors who have given the cost of lifeboats, and who have thus aided to accomplish such a large amount of solid, palpable, good work!

The greatest loss of life, during the seven years ending in 1865, occurred in the Irish Sea, which is one of our principal highways to and from America. The number of lives lost on the coasts and sandbanks of the Irish Sea, during these seven years, is more than double the number lost on any other part of the coasts, although during the

year 1865 the number on the East coast of England was very slightly in excess of the number lost on the coasts of the Irish Channel.

The most fatal winds during the year 1865 are thus given:— N. 61; N.N.E. 59; N.E. 90; E.N.E. 58; E. 55; E.S.E. 56; S.E. 97; S.S.E. 60; S. 94; S.S.W. 133; S.W. 192; W.S.W. 102; W. 73; W.N.W. 91; N.W. 101; N.N.W. 59 = 1,381.

It will thus be seen that westerly gales are far more destructive to shipping than gales from any other quarter.

Again: we find that, distinguishing the casualties of the past seven years, according to the force of the wind at the time at which they happened, 678 occurred when the wind was at force 6 or under, that is to say, when the force of the wind did not exceed a strong breeze, in which the ship could carry single reefs and top-gallant sails; and that 810 only happened with the wind at force 9 and upwards, that is to say, from a strong gale to a hurricane.

Thus we observe that, in the last seven years, 118 took place in a calm, 176 in a light air or just sufficient to give steerage way, 450 in light breeze, 220 in gentle breeze, 784 in moderate breeze, 1,280 in fresh breeze, 1,217 in strong breeze, 441 in moderate gale, 886 in fresh gale, 1,873 in strong gale, 1,444 in whole gale, 505 in a storm, 693 in a hurricane, 50 variable, and 400 unknown.

During the past year, the number of collisions reported was 354, of which 114 occurred in the daytime and 240 at night. In 1864, the number was 351; that being an excess of the number of collisions reported in any year since 1855.

We know of nothing more distressing than a collision between two powerful ships far out at sea. On a recent occasion, when the screw steamship *Osprey*, of Liverpool, and the steam sloop-of-war *Amazon* came into violent collision, nothing but the calm that brooded upon the waters off Start Point saved hundreds of lives from being lost. Indeed, if the survivors had not fallen in after the collision with some fishing smacks, about twelve miles outside Torbay, when they were pulling their boats about the Channel, with a compass which had gone wrong, and with no food or water on board, we should have had to-day to lament a frightful addition to the list of deaths.

Amidst this desolation and havoc, it is very satisfactory to find that the means used in saving life from shipwreck on our coast have made, and are making, the most encouraging progress. There are now nearly 200 lifeboat stations on our shores, and nearly the whole of them belong to the National Lifeboat Institution, whose activity and usefulness have commanded, not only the admiration of the British people and parliament, but also that of nearly every maritime power throughout the world. Indeed, it is a remarkable fact, that during the past few years kindred institutions have been established on the coasts of many of these nations; while at one of our thriving colonies in the antipodes, it is reported to the institution, they have built self-righting lifeboats equal to those of the mother-country.

Again: the Board of Trade support 249 life-saving rocket-apparatus

stations, which are worked by that valuable body of men—the Coast-guard. These, in conjunction with the provisions of lighthouses and floating light-vessels, and lifeboats on nearly all of the most difficult points of navigation on our coasts—the gradual improvement of natural harbours of refuge; the decoration of the Albert medal by her Majesty the Queen, and the rewards of the National Lifeboat Institution to our boatmen and fishermen for noble efforts to save life from shipwreck; all these admirable provisions testify to the unceasing skill and liberal care for the safety and deliverance of our tens of thousands of seafaring men, which their perils, acting upon a benevolent public, have drawn forth.

At present, nearly every class co-operates with the institution. The resident gentry and others, at its lifeboat stations, give their superintendence; the boatmen give readily their personal services for stipulated payments; the railway and steam-packet companies convey the lifeboats carriage free; and the public support the institution liberally.

The Lifeboat Society is infinitely more than an office or an agency. It is an organization of intelligence, a focus to which information converges, and a centre from which it radiates. By the circulation of facts which it maintains, it interests the whole public, awakens sympathy, excites to effort, and is continually submitting itself and its work to general supervision. It lives on its proper merits, and every shilling it receives may be said to be given under the valuable law of "payment for results." Thus, though it may be possible at the present moment to say that the institution has not reached this or that place on the coast to supply its wants, we are to remember that it is chiefly owing to what the institution has done to interest the public in the subject, that isolated cases of deficiency attract even casual notice; while the principle of progress at work in the institution is a guarantee that at no distant date every want when pointed out, or as it arises, will be promptly supplied.

All this comes of private benevolence, energy, and zeal; and so striking is the result, that the principle has, as we said before, commended itself to nearly every other maritime country in the world.

We feel assured that an institution of such national interest and importance will continue to receive a large amount of the sympathy and support of the British public, in aid of the maintenance of its noble life-saving fleet of one hundred and seventy-two boats; and that no society has a stronger claim for that sympathy and support than the National Lifeboat Institution is testified by the gratifying fact, that its lifeboats and other means, preserve every year, under Providence, hundreds of our hardy sailors from a premature grave, and many homes from the desolation of widowhood and orphanage.

NAVAL AND MILITARY ENGINEERING.—*Portsmouth and its Neighbourhood.*

Under the title of Naval and Military Intelligence—which intelligence applies to the subject of Engineering—we meet with the following information in the *Times* about the 3rd of November. The subject is an important one, as dealing with the efficiency of Portsmouth Harbour; and we have been led to believe that the naval engineering concerned in that great subject was always supposed to be carried out. But it appears we were mistaken.

The extract which we have made refers to two subjects. The first is the obtaining of tidal water from Langstone Harbour by a channel into Portsmouth Harbour, in the upper or interior part of Langstone by the Hilsea Lines. Relating to this subject the *Times* says:—

“We have certainly, as a rule, been unfortunate in our military engineering, and especially in carrying out the plans for the defence of our coast line. Forts have been planted on the overhanging brows of fast perishing sand cliffs, only to topple over into the sea; while others have been built on swampy land, so unstable and treacherous that keep and magazine have cracked through, their earthen ramparts having slid from their base and filled up the surrounding fosse. The most remarkable of all the instances of failure, however, are those in which the War Department and the Admiralty have each an interest. These departments seem invariably at cross purposes. To be convinced of the disadvantages of this opposition, it is only necessary to examine the present condition and intended outline of the connecting water channel between the harbours of Portsmouth and Langston, in front of the Hilsea lines of defence.

“The Admiralty engineers, in designing this channel, in the first instance, had to give a means of communication between the two harbours for gunboats of from 8 feet to 9 feet draught of water, calculating also that this depth of water, with a proportionate width of channel, giving an ingress to Portsmouth Harbour from that of Langston that would very materially increase the total volume of water in the former, and increase its tidal scour to an extent which would compensate for the water space subtracted from the harbour by the new extension works of the dockyard. As the channel connecting the two harbours had to be formed on the site of the old channel, and in front of the new lines of defence at the entrance of Portsea Island from the mainland at Hilsea, the work, of course, fell to the Royal Engineers, and now began the antagonism between two public departments.

“What the Admiralty desired to have in the new channel they will not have. The channel will not possess, by about one-half, the breadth or depth, and consequently volume, of tidal water laid down as the main conditions of its construction by the Admiralty engineers,

the designers of the new extension works of the dockyard at Portsmouth, and the conservators of its harbour. Portsmouth Harbour may be irretrievably ruined by such a course of procedure; but at all events the 'departments' will have had their fight out!"

It is tolerably clear from the foregoing, if we are to give credit to what is said, that the old adage is again verified about too many cooks. As the channel into Portsmouth Harbour by Hilsea had not only to be deepened, there being a bank extending about a mile between the level of low water in each harbour, but, in order that any volume should flow through it, width of that channel of course was necessary. This supply, therefore, that Portsmouth was to have had, to make up for the amount it would lose,—that is, to be shut out by the newly projected works,—is to be denied, and Portsmouth Harbour is to take its chance! Well; we will say nothing of the scheme here. But as it is evident that the ebb will be running away through the natural entrance to Langston, how much water Portsmouth might receive, were the channel really formed both as to breadth and depth, by Hilsea, will yet remain an open question.

The other subject alluded to by the *Times* refers to the point of Southsea Beach, the conservation of which is a most important one, and in which, had naval authorities been consulted, there can be no doubt that considerable expense might have been saved to the country. On this subject the *Times* says:—

"To another class of failures in military engineering belong those instances arising from natural and unavoidable causes, owing to the imperative necessity for taking a fixed position and covering it with a defensive work irrespective of consideration of any expenditure of time or money. These positions are generally found on the salient points of the coast line jutting out in front of river or harbour channels, and exposed to all the adverse influences of wind and weather, and the ever-grinding action of the tides and shingle. One of the most important of the whole series of the works now being erected to defend Spithead and Portsmouth Harbour against iron-clad fleets is the extensive fortification, now about one half completed, on Southsea Castle Point, at the entrance to the Portsmouth Harbour channel.

"Southsea Point, from its importance as being at the entrance of the channel leading into Portsmouth Harbour from Spithead, has been occupied as a defensive position from time immemorial. The work now erecting there is necessarily far more extensive and formidable than any preceding one, or than was necessary previous to the introduction of iron-clothed ships of war. Following the configuration of the beach line, its front represents two sides of a triangle, with the apex in the centre. At the apex will be the 'keep,' the lines right and left being massive earthworks of about 1600 feet in their combined length, with embrasures cut in them for mounting 22-ton guns, or as much larger as can be constructed, which will be fought through iron vertical shields fixed in the embrasures of 13 inches in thickness.

A dry ditch, with concrete sides, runs along the front of the work, and the shingle of the seabeach forms a natural glacis.

“So far all appears simple enough. The position is one that must be fortified; the works erecting for that purpose are sufficiently formidable; and neither time nor money is being spared in their execution. It is now, however, that the real difficulties are just beginning to make themselves felt; and this by means of storms and tidal action, with the aid of their great ally—the beach shingle. There exists a tradition that a gorse-covered piece of land once stood in front of Southsea Castle, where now flows and ebbs the tide. Certain it is, that the sea at this point, and more especially on the eastern arm, is gradually and not slowly eating away the land. The shingle of the beach changes also in a most extraordinary manner, and during a southerly or south-easterly gale it rolls in with the breakers on the beach with irresistible force, and carries off with it in the receding waves enormous slices out of the beach above high-water mark. The storm and the wave are thus the motive power of the enemy, and the shingle of the beach his mining tools.

“This power of destruction was known and duly considered when the present work of defence on the Point was designed, and measures were taken to protect the work from its ravages. The sea had found its way to the walls of the old works of Southsea Castle, and threatened soon to make a breach through, but the castle is to retain its position as the ‘keep’ of the new work, and its earthen strengthening ramparts right and left have been brought down to it in line just above high-water mark, and any further inroads of the sea must be stopped. The means adopted for this latter purpose were the construction of groynes and ‘wharfing,’ as the latter is technically termed, of wood piles and planking.

“The eastern end of the beach, the part most exposed to the effects of south-easterly gales, was first taken in hand, and was completed last year. A double row of piles was first driven into the shingle of the beach above high-water mark, and between these was fixed planking 2 inches in thickness. This is what is technically termed the wharfing; but it is simply double piling with retaining plank to hold the shingle at its back, and preserve the contour of the beach. To break the roll in of the sea towards this wharfage, four groynes at equi-distant intervals were run out 88 feet from the wharfage seawards, and the extreme end of these groynes further lengthened out into the tideway by 33 feet of sheet piling. All the piles and planking were sawn square, and the material was beech, except the small quantity required for ‘waling,’ which was fir. The amount of timber used was 124 piles 12 feet long, 32 piles 10 feet long, 74 piles 9 feet long—all 9 inches by 9 inches, 28 piles 7 feet long, 60 piles 6 feet long, and 72 piles 5 feet long. The expenditure of beech planking was nearly 3000 feet sawn on both sides and edges, and 85 feet of fir sawn on all sides—8 inches by 6 inches.

“The heavy gales of February proved this system of piling and groyning to be utterly useless as a protection to the upper beach and

the fort. The sea rolled in over all, broke through the concreted wall of the fort ditch, and deposited in the latter some hundreds of tons of shingle piled up against the escarp of the fort, and laying a pathway from the beach to the very embrasures. To remedy this disaster, and prevent one of a like character during the coming winter, a double row of whole beech-tree piles are being driven between the groynes and in front of the line of wharfage piles and planking. These breakwater piles are to be 290 in number, 18 feet in length, and of not less than 10 inches average diameter. They are being driven about 8 feet into the shingle, and will therefore stand about 10 feet above the ordinary shingle level.

“The intention of this arrangement is to break up the waves as they dash up against and pass between them; and if the piles had a solid footing, the desired result would most probably be achieved. The piles, however, stand in shingle whose depth changes with every storm, and indeed almost with every tide; and it would be no absurd prophecy to say, that in the first south-easterly gale these ‘breakwater piles’ will all disappear, and the ruin of the remainder of the groynes and wharfage be completed. The Royal Engineers have a moving beach of shingle to deal with in front of their great work at Southsea, and they have dealt with it so far most unsuccessfully. Their piling and groyning has been wrong in design, and far too slight to hold fast so treacherous a beach and breast the rollers which leap over and through it in a winter’s storm; and for this reason, a repetition of last February’s disaster, only perhaps on a larger scale, may be expected on the eastern beach and battery of Southsea Point during some part of the rough season of the year now coming upon us. The western part of the work being sheltered from the action of the south-east gales by the apex on which stands the castle, or ‘keep,’ in the centre may have its glacis or the shingle beach effectually preserved by the same system of piling that is being tried so unsuccessfully on its eastern side, and the first part of this work—the formation of the ‘wharfage’—has just been commenced. The plan here is one line of wharfage, with two projecting groynes lengthened by sheet piling: All piles and planking, with the exception of the ‘waling,’ will be of beech, and sawn square of the same dimensions as the East groynes.

“A few words are necessary, in conclusion of our present notice of the work of piling and groyning of Southsea Beach, relative to the material used for the purpose. The East piling will no doubt be torn up and washed away in the first heavy south-east gale; but it was driven to stay there, and on the West beach it no doubt will stay. Where the piling stands above low-water mark, it is, of course, uncovered by water twice in the twenty-four hours, and exposed to the influence of the wind by night and the wind and the sun by day. Does this affect the durability of beech piling and planking? Tredgold, the acknowledged authority on such matters, says, ‘beech is durable when constantly immersed in water, but damp soon destroys it.’ And again: ‘beech is useful for piles, when constantly wet.’”

On this subject, then, it appears that all that has taken place in reference to the destructive power of the sea in a south-easterly gale was pointed out, as long ago as in 1845, by Admiral Sheringham, an extract of whose report, on an entrance at that point to the mercantile harbour of Portsmouth, by a canal along Southsea Common, we give. No doubt, piles driven into shingle have no foundation, as the *Times* says, and as Admiral Sheringham long ago said, when "it is known from observation that the beach undergoes alteration during gales of wind." But here is what the admiral says in his report.

Extract from the Report of Commander Sheringham, dated March 10th, 1845, to Lord Haddington, on the subject of the proposed Mercantile Docks in Portsmouth Harbour through a Canal, an entrance to which was to be made near Southsea Castle.

"That to open Southsea Beach at all must be attended with some risk; for should a gale at S.E. with spring tides occur during the progress of the work, there would be considerable danger of overflowing the whole of Southsea Common, and the present raised beach swept away by the pressure of the backwater.

"It is known from observation that the beach undergoes alteration during gales of wind; and therefore it is not at all improbable that vast quantities of shingle would be heaped up at the back of any projection below high-water mark, to the imminent danger of causing spits and eddies hazardous to the channel,—more particularly as at this point the beneficial effect of the backwater from Portsmouth Harbour has almost entirely ceased.

"To keep the entrance to the canal open, it would probably be necessary to have frequent recourse to dredging, and if the vessel for this purpose be moored athwart the channel, she would prove an intolerable nuisance in that confined navigation to her Majesty's ships sailing in and out of Portsmouth Harbour, particularly in easterly winds, when it is necessary to keep close to the steep shore of the beach.

"Extensive works of masonry, &c., on the sea face of Southsea Beach would always be subject to the destructive effects of southerly gales, long frosts, land springs, and treacherous foundations, which would incur the serious risk of having large masses of solid masonry, &c., rolled down the steep bank into the channel."

So much, therefore, for our united Naval and Military Engineering. We *are* unfortunate; and more unfortunate still in having a shingle beach to deal with East of Southsea Point, instead of a rocky shore, with a gradual sloping foreshore extending out seaward, of small depth, on which the sea might expend its fury, instead of the tender and too easily disturbed beach of shingle which now so easily yields to its effects, to our grievous cost.

THE VARIATION CHART.

A correspondent, in our number for August last (p. 394), alludes to the difference which he has found between the magnetic variation ascertained by him between Cape Horn and New Zealand and that of the Variation Chart of the Admiralty; and he has cited the observations given by Capt. Shadwell, as they appear in our volume for 1851, as confirming his own, in opposition to the chart. He asks what has become of the mass of observations in the same part of the world sent to the Board of Trade, and then he gives his own reasons for differing from the chart.

Now, on perhaps a too rapid glance of the subject, we counselled our correspondent to depend on his own observations for the variation (combined even with the ship's deviation, or against it), rather than to take the variation, and use it, as given by the chart, which to him, in such a case as he stated, was calculated to mislead. And, at any rate, we considered this safe advice,—viz. to follow using the result of his own observations for the variation rather than use that of the chart.

But we should have gone further than this. We should have added that the Variation Chart has been constructed with the greatest possible care and by a just appreciation of the observations of all ships, the journals of which even the Board of Trade can supply, besides those of Sir James Ross and H.M. ships everywhere on the ocean, including the part in question. Now, considering that his is a solitary instance, if we strip it of the support of Capt. Shadwell, about whose results something is not satisfactory,—after all, it must not be allowed to shake confidence in all the rest of the observations made within the same limits. We know that ship deviation is comparatively a modern element, which never entered into old variation charts from the time of Halley to that of Mr. Evans, compiled for the Admiralty.

We know that, since the publication in 1817 of the variation chart of Yates, and that in 1833 of Professor Barlow, great advances have been made in magnetic science, and more especially in the branch included in the term "terrestrial magnetism," or the knowledge of the distribution of the several magnetic elements,—viz. force, dip, and declination, or variation over the earth's surface. From 1839–40 especially, several Foreign Governments have undertaken magnetic surveys of considerable extent in their own territories. The British Government, in addition to the magnetic survey of North-west America, sent the antarctic expedition of Sir James Ross for the special magnetic survey of the southern hemisphere, from about the parallel of 35° S. as far South as he could reach. The East India Government have had magnetic surveys of the Indian Archipelago and British India made under their auspices; and the detached contributions of skilled observers in all parts of the world have added to the vast stores of observed facts.

The investigations of the great German geometrician Gauss,

published in his *General Theory of the Earth's Magnetism* in 1839, gave a great impetus to the practical aims of the several Governments and individual observers just alluded to, and these investigations clearly pointed out the close agreement between theory and observation in the method of analysis he had adopted. Charts of magnetic lines of equal force, dip, and variation accompany the treatise of Gauss, and are admirably adapted to convey to the mind the distribution and numerical values of the several elements.

Modern compilers of variation and other magnetic charts have thus had much material at hand; and it was from these sources, as well as from selected observations made in her Majesty's ships, especially from the various surveying expeditions that traversed the globe between 1845 and 1857, that the Admiralty Chart was compiled.

Now, as we know all this to be fact, and that all the authorities for the variation curves everywhere in the Admiralty Chart have not only been founded on reliable observations from every quarter, we are bound to accept them as the well-digested results of these from an officer the best qualified, by his long experience of the subject, to form them, and assign the positions of those curves in the chart. Before such authority, we say, the isolated results of our correspondent must yield,—how can they set aside a host of others against them?

We shall, therefore, refer these remarks to our correspondent for his consideration. Might not some unseen, intrusive influence have been at work on his compass in the part to which he alludes? Do his later observations confirm his former? and are they confirmed by other and what ships and captains? We all know that a very small object will largely affect the compass by change of place; and, although we have counselled him to use his own observations for his own reckoning, we do not advise him to depreciate his estimation of the Variation Chart, which has been compiled from the highest authorities by all the talent and experience which the great importance of such a chart imperatively required.

OYSTER CULTURE IN THE EXE.

The estuary of the Exe is about one of the best places on our coasts for this interesting work, which we are glad to find has been taken up in earnest by the Earl of Devon and some local gentlemen. On the occasion of inaugurating the society—of course by a dinner—

Capt. Peacock, in returning thanks for the Navy, said that, since he had disconnected himself from the active service of her Majesty's navy, he had interested himself in the promotion of steam navigation in the Pacific; and his Lordship having done him the honour to refer to that passage in his professional life, he certainly felt proud to say

that he (Capt. Peacock) had had the honour of conducting the first steamer through the Straits of Magellan. Since the establishment of the Royal Naval Reserve, it was pleasing to see that there was a unanimity and good feeling between the navy and the mercantile marine which did not previously exist; and he was confident that, if the country was engaged in a war, there would be a close alliance between the navy and the mercantile marine, that would secure success to the fleet of the country. Being in the habit of visiting the dock-yards occasionally, he was happy to say that the navy of our country, as far as the *matériel* was concerned, was never in a better position than at present. With regard to the iron-clads, there was no doubt that we possessed the finest fleet in the world; and as Capt. Cowper Coles' recent turret system was being more generally adopted, they would soon have a fleet that could not be compared or outvied by that of any other country. They would, however, have to look for the success of their navy to the indomitable courage of the officers and men. Should England be unfortunately dragged into a war, he felt confident that our Jack Tars would fight as gallantly behind iron turrets as they had previously fought behind wooden walls.

We may leave her Majesty's navy to be dealt with by the Admiralty, the members of which Board do not, we believe, entertain the same high opinion of it as Capt. Peacock. Our point refers to oysters, on which we are very glad to find that

Mr. Ffennell, who was much applauded, congratulated the company on the successful inauguration of the scheme—of the success of which he had not the least doubt. If judiciously managed, the fishery would pay commercially, besides benefitting the neighbourhood by affording employment. It was a matter of regret that England, while paying great attention to agricultural pursuits, neglected the cultivation of the waters. If properly attended to, the waters would yield as good a return as the land. Some people were of opinion that oysters could be grown anywhere; but it was not so. They needed particular places, which were few and far between; but the Exe, he felt sure, would produce them as fine as any locality. It was also better for those employed to be regularly engaged by a large company, than to depend on desultory work. The cultivation of oysters was an important matter, and had received the attention of the legislature during the past session. They might depend that the supply could not exceed the demand. The price of late years had not only doubled, but quadrupled.

We wish all success to such societies, and trust that others will follow the good example of their neighbours.

WAR-SHIPS AND MONITORS.

In several of our recent numbers we have expressed our opinion of the monitor type of craft as the bulldogs of the sea,—vessels which, as long as they have fuel for their engines, and the necessary supplies for their crews, may roam about the ocean and defy any nation with which they are in hostility. It is true they want one important quality, which every sailor knows the advantage of, and which was dwelt on by Admiral Goldsborough* in his report in our volume for 1865,—and that is the power of speed. But if they have not this, they have that of invulnerability, or something very near it, and, along with it, the power of smashing any one of the broadside-armoured craft with their heavy guns. The recent war operations against the Confederates have given the seamen of the United States of America an experience in these craft, and in another called torpedoes, which they will well know how to turn to account when the necessity arrives. Already have they a first-rate monitor in the Pacific, named the *Monadnock*,—a craft similar to the *Miantonomoh*, which paid us a friendly visit at Spithead in the course of the last summer—a most friendly act when it can be looked on philosophically.

The *Miantonomoh* was inspected by our authorities in all her parts and powers, and nothing was withheld from that inspection; and whether by the powers of the vessel it were meant or not, there can be little doubt that, among naval men, the hint thus given was not lost. Those officers, we say, whose duty it might be hereafter in the course of time to meet them as enemies on the ocean, could well measure those qualities of attack and defence which they saw before them. And they were persons who knew well how to set a proper value on the powers of the monitor. Time, we all know, brings strange things to pass.

But the same Power which sent the *Miantonomoh* for us to look at has not been idle. The admirals of that power fully believe that the monitor type will be the future ship-of-war, smaller craft of the ordinary description being left to do the secondary work, while they dispose of the larger and more pretentious class. Even other foreign powers, not prepared themselves for the construction of such craft, give ample employment to our iron mercantile dockyards to build for them. We have already printed a list of those constructed for Russia; the United States are building their own,—and a goodly fleet we have also enumerated of theirs; while for nearly all the European powers we are building, and even for South America, the infant States of Chili and Brazil, show their appreciation of the type of vessel which, from the weight of metal the least of them is able to carry, must become hereafter the *real ship of war*.

Under such circumstances, we naturally look at home; and we as

* In our volumes for 1864 and 1865 we have preserved several accounts of monitors; but more especially reports of Admirals Goldsborough and Porter.

naturally ask, Where are our monitors? where are our future war-ships? Shall we point to the Channel fleet? so vauntingly alluded to the other day by the *Times*,—surely more in sarcasm than reality. 'Twould be a grievous failure when we depended on them: they might be dealt with one after another by a monitor in a manner little suspected by John Bull. We do trust the day will not come that will see the annihilation of our navy. But we may depend on this, that the days of a navy of broadside guns are gone by; and although these may do the minor duties very well, the more serious heavy work must fall to the lot of monitors; and if we have them not, the sooner we provide them the better.

Let us preserve for future reference (as historical facts are important) the following from the American press, as a foreshadowing of what we are leaving ourselves exposed to; and, while we rejoice at hearing reports of honour being at length bestowed on our Capt. Coles, let us console ourselves that the state of the case seems at length to be looked on in its proper light by our authorities. We trust that such is the case, and that we shall not be laughed at for building monitors for every one excepting ourselves, who really require them most! The remark on Capt. Sherard Osborne's boarding party, and the mode of receiving them, must not be lost sight of in the American monitor; for it is a kind of reception just such as might be expected from a practical people like our cousins—bent on whipping us.

“OUR IRON-CLAD NAVY.

“*To the Editor of the Army and Navy Journal.*

“Sir,—Your correspondent U. S. N. says,—‘Monitors are very good things in their way (so are pocket pistols for certain purposes), but they do not constitute the naval strength of the nation.’ And, to give weight to his disparaging opinion, adds,—‘I do not speak at a venture; I had during the rebellion some little experience, and know exactly what monitors are capable of enduring.’

“In view of this unfavourable opinion expressed by one who has actually had ‘some little experience’ on the subject, it will be reassuring to the country to know that Vice-Admiral D. D. Porter, our highest authority, entertains a very different opinion of the monitors. This officer stated in his report to the Secretary of the Navy, dated on board his flag-ship *Malvern*, off Fort Fisher, January 15, 1865,—‘The *Monadnock* is capable of crossing the ocean alone (when her compasses are once properly adjusted), and could destroy any vessel in the French or British navy, lay their towns under contribution, and return again (provided she could pick up coal), without fear of being followed.’ Fortunately, the nation possesses four monitors of the *Monadnock* class,—the *Miantonomoh*, which has created such a sensation in Europe, being one of this class. There are still stronger grounds for congratulating the nation. It possesses, besides the *Dictator* and *Puritan*, four double-turreted monitors of the *Kalamazoo* class, each twice as large, in point of capacity, as the *Monadnock*,

being 345 feet long, 56 feet beam, and drawing 17 feet of water, with 6000 tons displacement, and provided with much greater engine power. But, what is far more important, the *Kalamazoo* and her sister ships have turrets of the *Dictator* pattern, 15 inches thick, composed of two distinct plate cylinders, with 5 inches thick solid iron in the middle. Again: the side armour of these formidable iron-clads is nearly twice as thick as that of the *Monadnock*. What might we not expect in a naval conflict from these monster monitors, under the command of a plucky sailor like Vice-Admiral Porter? Having told us he could destroy any vessel in the French or British navy with the little *Monadnock*, with her 12 inch thick turrets, what force could resist his squadron of *Kalamazoos*, with 15 inch turrets? What town would refuse any 'contribution' he might demand? As to ramming, your correspondent, with all his misgivings, surely cannot apprehend that the 6000 ton craft, with their ponderous decks and armour offering an almost unlimited resistance, would be run over like 'any other raft.' Our vice-admiral, with his precise knowledge of dynamics, would be more likely to court than avoid collision, as it could not fail to result in disaster to the enemy.

"Your correspondent says he 'should be sorry to see experiments made against the turrets.' There is really no occasion to make such mystery of the matter. Everybody who knows anything on the subject understands perfectly well that our laminated 12-inch turrets could not stand firing from the 15-inch guns, and that the constructor did not plan these turrets to resist ordnance which had no existence when the monitors were first built. But this circumstance in no manner affects the question whether the monitor system is superior to the European broadside system. The great fact remains unchanged that upon our system we can protect our guns and gunners by 15-inch thick iron in the large vessels and 12-inch in the smaller class, with side armour of from 10½ inches to 14 inches, backed by several feet thickness of wood in the large classes.

"Recent experiments in England with the chilled Palliser shot have shown that, under the most favourable circumstances, armour plates of 8-inch thickness may be pierced at short range. As a 12-inch plate offers more than double resistance, compared with the 8-inch plate, all we have to do is to remove the outer plating of our small turrets, and apply solid plates to ensure absolute impregnability against the most formidable ordnance and projectiles possessed by our maritime rivals.

"As to the late experiments at Fort Monroe, which your correspondent deems conclusive against monitors, I beg to inform him that more was known previously about the power of our heavy ordnance to pierce armour, solid or laminated, than those experiments have taught. Solid plates of wrought iron from the *Warrior*, 4½-inch plate up to 7-inch thickness of soft steel plate, all kinds and combinations and various thicknesses of laminated armour plates have been pierced at the Washington navy yard. The projectiles employed have ranges from 8 inches up to 15 inches diameter, and the charges

from 15 lbs. to 60 lbs. Thanks to the diligence of our Navy Ordnance Bureau, there is no such mystery about the strength of our turrets as your correspondent supposes. Indeed, what he proposes to find out by experiments we already know, and we can determine to an inch what thickness of plate is necessary to resist a given shot with a given charge of powder.

"Respecting the monitors at League Island—I do not allude to the river crafts there, misnamed monitors, which cannot float their own bodies, much less heavy guns—the nation need be under no apprehension. Their turrets and side armour are all of the same thickness, as in the trustworthy *Monadnock*, with the advantage, besides, of having thicker armour-backing than the vessel which our experienced vice-admiral has told us can sink any vessel in the French or British navy. Of course they cannot cross the Atlantic to exact contributions; but they are good for our home defence. In their presence New York has nothing to fear from foreign iron-clads, as they can take up positions in shoal water along the ship channels, and thus, unmolested, sink their heavy deep-draught opponents. Stationary forts may be passed, but the impregnable monitor turret follows the intruder to the very spot from whence he intends to deal destruction.

"E."

By the following letter from San Francisco, in a Sandwich Island paper, we see the present disposal of the *Monadnock* monitor.

"San Francisco, June 25th, 1866.

"We arrived over in the barque *D. C. Murray*, on the evening of June 20th, eighteen days from Honolulu, which we regard as a rapid passage, considering the light winds that prevail during the month. Our passenger list was a large one, and was made up of about as queer an embodiment of variety, and some spice, as you could well conceive. Gentlemen of leisure and gentlemen of pleasure, sporting gentlemen, gentlemen who eat quantities of hash, and gentlemen capable of bad puns; families who pay their way, and families of 'bumming' proclivities, and lastly, not leastly, gentlemen of honest and large hearts, whose homes are on the rolling deep. Take two old sea captains, both the essence of obstinacy, who quarrel, and split, and reunite from two to three times a day, whose discussions, over winds and squalls, and speeds, and schooners, and ships, and whaling voyages invariably lead into diametrical opposition and violent dispute, and who persistently, in side interviews, declare that the *other* is wilfully *obstinate* and 'won't see it,' and then blend in, if you can, an outside collection, who do everything to fan the flame, and covertly enjoy the fun, and you have an approximate idea of the genius of our ship's party.

"Occasionally we had a lull, or a change of sport, when a rat was entrapped, and the two terriers, eager for their prey, were brought down into the cabin for a strife and the death of their foe; but no sooner was the contest ended, than up sprung a debate as to the merits of the two dogs, each owner fondly asserting that *his* dog 'was the greatest *dory* for rats he ever did see.' These changes of discursive

topics we all relished, as delightfully refreshing and healthful, always regarding them as a strong appetizer for dinner. Thus the days rolled on till we arrived in port.

"The city of San Francisco was just waking from its slumbers, as we stepped upon its shores the following morning after our arrival. Nothing is so novel to a stranger just arriving from sea, or affords so tempting and delicious a sight, as the large array of fruits and enormous sized vegetables, which line the streets and markets. Apples, pears, plums, and fruits in endless variety, cabbages like miniature mountains, onions, carrots, squashes, and cauliflowers of prodigious size and limitless profusion, with pendent beets hanging down, like a Chinaman's cue, from the overloaded vegetable wagons.

"If one saw nothing but forenoons in this city, he would truthfully assert that it has a most salubrious and captivating climate, but let him wait till afternoon, and the chances are that he won't see much of anything. Some people have strong prejudices against sandy hair, mustaches, whiskers, or even sandy complexions, but these drift into charming favourites compared with *sandy eyes*. Puffing your way along any of the streets of this boasted city of an afternoon, unconscious of danger, suddenly uprises a frightful billow of sand, brickdust, cobble stones, and street debris; with no time to take shelter, you instinctively close your eyes, draw your hat, wheel your head and shoulders, and thus fortified, martyr like, await the sweeping breaker; but its no use, eyes, and mouth, and nostrils, and hair, and whiskers, and linen, are filled and coated alike, and the gritty, horrible tastes which swamp your mouth, are mixed up with unutterable words of condemnation and lament. 'Eating your peck of dirt only,' one says. Yes, but who wants to be forced to gluttonize, and devour at one meal what should be distributed over a life time.

"Residents say that the tide of emigration is again in favour of California, and regard it as an encouraging omen of enlarged business.

"Everywhere here you observe unmistakable signs of progress, and in every direction the city of San Francisco wears a decided improving aspect. Streets are being relaid, sidewalks repaired, and numerous fine edifices are in process of erection.

"Crowds are daily visiting the *Monadnock*, this great naval wonder, and the *Vanderbilt*, both lying off in the bay, and which arrived a day or two after we came into port. In the language of Jack Downing, I and General M'Dowell together visited the first named. At a distance she looked like a half sunken ship, standing less than two feet out of water. As you approach her, flat and motionless, she bears nothing formidable or terrifying in appearance, but rather looks tame and sleepy. When once aboard, and you proceed to enter the aperture of one of her turrets, facing the grim, open mouth, of one of those famous Dahlgren 'swamp angels,' you begin to wake up to the sense of your 'situation.' These enormous guns are fourteen feet in length, black and menacing, with 480 lbs. balls laying beside them, and consuming 60 lbs. of powder at a charge. After seeing them, you can soon begin to form a conception of their death-dealing, destructive

qualities. I put my head into the muzzle of one, and concluded I had a very small head or that was a very large hole. One of the officers told me that while the monitor was at Rio, Brazil, they found one of the Brazilian officers, with his knife, trying to chip or pick into the guns, suspecting that they might be only 'quaker guns,' made of wood. Surrounding the inside of the turrets, are suspended canvas, thickly lined with felt, which serves to deaden the sound, so that the noise of the discharge is no greater inside the turret than outside. While the Emperor of Brazil was on board, at his request two guns were loaded to be fired, himself to be allowed to discharge them. After discharging the first, he hastily withdrew, requesting them to omit the other.

'On the deck lay two 'Baulseys,' or cigar-shaped water-tight boxes, about 28 feet long, and 5 feet in diameter at the centre, for supplies and water in case of disaster or shipwreck. But what strikes a visitor as the most peculiar and novel are the band-box turrets, 46 feet in circumference, 10 feet high, and 11 inches thick, with little horizontal spaces, cut half an inch in width, four or five inches long, for sight holes. The outside of these are ingeniously protected by a little stairway of steps, cut into each successive layer of plate, till it widens to something over a foot long and four inches wide, forcing a ball when striking to change its inclination and dart either upwards or downwards. On the top of the turrets are removable pilot houses, never used in action. The compasses are immersed in alcohol to prevent the attraction of the magnet towards the iron. In the fire rooms the average heat is 150° to 160° , but it has touched 175° . In the engine room it ranges from 110° to 135° . The highest speed attained was 9 knots an hour, but usually she makes $6\frac{1}{2}$ knots. She draws $12\frac{1}{2}$ feet of water, and has 18 engines for all purposes. She is soon to be taken to the navy yard and laid up, her officers and crew returning to New York on the steamer of July 10th or 20th.

ROLAND.

Nautical Notices.

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

ROCK IN PORT NISITA,—*West Coast of Italy.*

The Hydrographic Office in Paris has just published a statement of Captain Cambiaggio announcing the position of a rock in the middle of the port of Nisita, on the West coast of Italy, on which a vessel has touched. On examination it proves to have two pointed summits, the least water on which is 7 feet. It bears approximately E.N.E. from the lighthouse on the mole, about 370 yards, with the N.N.W. extreme of Isle Nisita in line with the highest part of Cape Misena.

PARTICULARS OF LIGHTS RECENTLY ESTABLISHED.

(Continued from page 605.)

All bearings are magnetic.

Name.	Place.	Position.	F. or R.	Ht. in Feet	Dist seen Mls.	[Remarks, &c. Bearings Magnetic.]
Sharp Island	Chesapeak B. N. America	.....	F.	35	10	Est. 20th October, 1866, in lieu of former. (a.)
65. Downs	.....	.....	..	..	..	Alteration in position of buoys. (b.)
66. S. Paolo	Gulf of Tarranto, Italy	.....	F.	49	..	Changed from Red to natural colour. (c.)
Rosas	Poncella Pt, Spain	.....	Ffl	..	..	Flashes Red,—interval between not stated.
Barcelona	.....	.....	Ffl	..	..	Flashes Red, | interval between not stated.
Kherseen Bay	Black Sea	.....	F.	119	..	Beacons replaced by two lights. Western next the shore Red. Eastern (d.)
Voloskaja	River Bug	.....	F.	170	..	Has an additional light. (e.)
67. Xicalango Pt	Mexico Gulf	18° 37' 8" N. 91° 54' 8" W.	E.	100	14	Est. 16th September, 1866. Interval every half minute. (f.)
68. Bristol Channel	One Fathom Bank	.....	R.	38	..	Est. 2nd September, 1866. Revolves four times a minute. (g.)
Nash Light	.....	.....	..	..	..	Est. 10th November, 1866. (h.)
Burnham	Low Light	.....	..	..	..	Est. 1st November, 1866. (i.)
69. Colombo	Ceylon	Clock Tower	F.	184	18	Est. 1st February, 1867.
70. Hen and Chickens Reef	Buzard Bay, N. America	.....	F.	40	10	Est. 10th November, 1866. (k.)
71. Cape Bellavista	Sardinia East coast	39° 55' 8" N., 9° 43' 3" E.	F.	541	30	Est. 15th November, 1866.
Palermo	Off the Mole	Floating Lt.	F.	24	..	Est. 1st November, 1866. Off the Mole.
72. Spithead	Wreck Buoy	.....	..	..	..	(l.)

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

(a.) 64.—The position of it is N.W. $\frac{1}{2}$ W. by compass, distant one third of a mile from the old tower.

Mariners bound up Chesapeake Bay will now see the light shortly after passing Cove point light, whereas in its former position it could not be seen until abreast of it, owing to the woods on the island.

(b.) 65.—The South Break Buoy has been moved 6 cables to the N.N.E. of its former position, and now lies in 6 fathoms at low water springs, with the coast guard flagstaff at Broadstairs, in line with the chimneys of the western cottage at the North Foreland lighthouse, bearing N.b.E. $\frac{1}{2}$ E.; Upper Deal mill, in line with the Time ball, W.S.W.; Deal bank buoy, S.W.b.W., distant 1·7 miles; South Sand head lightvessel, S.b.W. $\frac{1}{2}$ W., 5 miles; Bunt head buoy (new position) S.b.E. $\frac{1}{2}$ E., 1·2 miles; Gull lightvessel, N.E.b.E., 1·3 miles; and Middle Brake buoy, N.N.E., 2·2 miles.

The Bunt Head Buoy has been moved 1 $\frac{1}{2}$ cables to the S.b.E. $\frac{1}{2}$ E., and now lies in 4 $\frac{1}{2}$ fathoms, with Upper Deal mill, its breadth open north of a new chapel at Deal, bearing W. $\frac{1}{2}$ S.; St. Lawrence mill open west of Ramsgate mill, North; South Sand head lightvessel, S.S.W., distant 4 miles; Deal Bank buoy, W. $\frac{1}{2}$ N., 1·8 miles; South Brake buoy (new position), N.b.W. $\frac{1}{2}$ W., 1·2 miles; Gull lightvessel, N.b.E. $\frac{1}{2}$ E., 2 miles; and N.W. Bunt buoy, N.N.E. $\frac{1}{2}$ E., 1·4 miles.

The South Middle Brake Buoy has been discontinued.

Also, that in March, 1867, the following changes will be made in the colour and character of the undermentioned buoys:—

The South Brake Buoy will be coloured red, instead of black as at present.

The *Elbow Buoy* will be coloured *red* and *white*, instead of black and white chequered as at present.

Both these buoys will retain their staffs and balls.

The *Longnose Buoy* will be a conical, instead of a can buoy as at present.

(c.) 66.—Seen through an arc of 240° or when bearing from about $E.\frac{1}{2}N.$ round by north to $S.S.W.\frac{1}{2}W.$

(d.) 66.—The towers are placed about $E.b.N.\frac{1}{2}N.$ and $W.b.S.\frac{1}{2}S.$ of each other, distant 7 cables nearly. The western tower or that near the shore exhibits a *fixed red* light, at an elevation of 112 feet above the mean level of the sea; and the eastern tower a *fixed white* light, at 170 feet above the sea, and said to be in lat. $46^\circ 37' 45'' N.$, long. $81^\circ 45' 40''$ East of Greenwich.

(e.) 66.—Above *Voloiskaia* point on the right bank of the *Bug*,—from which a light is visible between the bearings of $N.W.b.W.\frac{1}{2}W.$ and $W.b.N.\frac{1}{2}N.$ —now exhibits an additional light between a line from *Little Dereklea* on the west bank, and the bearing of about $S.\frac{1}{2}W.$ The bearing passes a cable westward of *Arjinakaia* bank.

(f.) 67.—On the coast of *Xicalango*, on the west side of entrance to *Laguna de Terminos*.

(g.) 68.—With reference to Notice to Mariners, No. 59, a lightvessel has been placed near the west end of the *One Fathom Bank*, in the *Bristol Channel*.

The light revolves, but a *fixed red* light is also exhibited at a lower elevation.

The vessel lies in 8 fathoms low water springs, with *Nash* high lighthouse, nearly midway between the low lighthouse and *St. Donats* white mark (rather nearer the latter), bearing $N.W.$, distant 10.6 miles; *Barry Church*, in line with the easternmost cliff of *Cold Knap* point, $N.N.E.\frac{1}{2}E.$, 3.7 miles; *Penarth* church, in line with the east end of a clump of trees, $N.E.b.E.\frac{1}{2}E.$; *Breaksea* buoy, $N.W.\frac{1}{2}N.$, distant 5 miles; *Flatholm* lighthouse East, 7.1 miles; *One Fathom Bank* buoy, $E.b.S.$, 2.2 miles; and *West Culver* buoy, $S.S.W.$, 3.4 miles.

(h.) 68.—At the *Nash High Lighthouse* a *red* light will be shown between the bearings of $N.W.b.W.\frac{1}{2}W.$ and $N.W.\frac{1}{2}W.$ The latter bearing leads a quarter of a mile south of the *Breaksea* buoy.

(i.) 68.—*Burnham Low Lighthouse*.—Also, that on and after the 1st day of November, 1866, a *red* light would be shown from *Burnham* low lighthouse between the bearings of about $E.\frac{1}{2}S.$ and $E.\frac{1}{2}S.$ The latter bearing will cut the *Gore* (in its present position) and the *Little Gore* buoys. A *red* light is also shown up the river from the same lighthouse between the bearings of $N.b.E.$ and $N.b.E.\frac{1}{2}E.$, Easterly.

(k.) 70.—A lightvessel will be placed to mark the *Hen* and *Chickens'* reef off *Gooseberry* point, west entrance to *Buzzards* bay, *Massachusetts*.

The vessel will exhibit a *fixed* light, at an elevation of about 40 feet above the sea level, and in clear weather should be seen from a distance of 10 miles.

She is schooner rigged, painted black with a white horizontal streak; the name *Hen and Chickens* is painted in large white letters on both sides and stern, and she lies half a mile $S.E.$ of the *Young* and *Old Cock*, the outlying rocks of the reef.

(l.) 72.—A *green* buoy with the word *Wreck* painted on it, has been placed on the East side of a wreck lying in the Eastern channel to *Spithead*, in 12 fathoms water with the following bearings;—*Warner* lightvessel $N.N.W.\frac{1}{2}W.$ $\frac{1}{2}$ a mile; *Nab* Lightvessel $S.E.\frac{1}{2}S.$; *Nab* Buoy $S.\frac{1}{2}E.$

NOTES ABOUT NOVELTIES.

The English Sailors' Club and Reading Room at Marseilles has just been opened. The rooms were gaily decorated with flags from the Peninsular and Oriental Company's steamship *Pera*. The club is well placed at 8 Rue Imperiale, between the old and new ports, and is free to all English-speaking sailors coming to Marseilles.

The ship *Imperial*, arriving at San Francisco from Kodiak, has reported a shock of earthquake at 4h. p.m. of the 5th. Three houses and nearly all the chimneys in the town were shaken down. The sensation on the ship was terrific: she seemed as though passing over rocks at great speed, while articles were shaken down which the most violent gales had not disturbed. In the southern parts of the island large rocks were torn up and thrown down the mountain. The shock lasted forty seconds.

We hear that a volcanic island has been thrown up off the Florida coast, 90 feet above the sea level and 1700 feet in circumference. We shall be thankful to any of our readers for further notice of this said island.

The *Mechanic's Magazine* says,—“We have much pleasure in announcing that a Commandership of the Bath is to be conferred on Staff-Commander Moriarty, R.N., whose services in navigating the *Great Eastern*, and in discovering the position of the old cable, were for a time insufficiently recognised. And also that Capt. Cowper Phipps Coles, R.N., has been recommended to her Majesty by Sir John Pakington for the Civil Commandership of the Order of the Bath. We shall be very glad to find hereafter that both these statements prove to be true. But it is rather remarkable, that, while rewards for the successful laying of the Atlantic electric cable have not been stinted, that the original proposal of electrical communication was made by a Mr. Francis Ronalds to the Board of Admiralty so long ago as in 1816, who received in answer that “telegraphs of any kind were wholly unnecessary.” In our next we shall have more space to enter on the question. But any one might ask, in the face of these rewards, how could the inventor especially go unrewarded when those who carry out his invention receive theirs in full?

It is said that the iron turret ship *Huascar* before leaving England, was coated on her bottom with Messrs. Peacock and Buchan's last composition. We understand that the composition has given such entire satisfaction that the Chilian government have just ordered five tons of the same material to be sent out to the arsenal at Valparaiso for the use of their iron fleet in the Pacific.

It also appears that during the naval engagement at Curuzu on the 1st August, the *Rio de Janeiro*, iron-clad, while covering the landing of the troops, was blown up by two torpedoes, and immediately sank, with the captain, two officers, and sixty-two of the crew. The tor-

pedoes used by the Paraguayans are of a very primitive description, consisting of a box filled with gunpowder, to which is attached a fire-piece, which is fired by a man on shore pulling a string attached to the lock.

A very successful trial was made at Portsmouth, on the 5th November, on board the *Mersey* screw frigate, of Brank's patent capstan pumps. The pumps are worked on the upper deck of the ship by a messenger chain from the capstan, running over the pitch-wheel of the pump. The advantage of this arrangement over the old plan is that it enables the crew, in the event of the ship being on fire below, to continue working the pumps without being driven away by the smoke when working them below and between decks, as was the case with the crew of H.M. late ship *Bombay*, on the loss of that vessel by fire off Buenos Ayres.

It appears that the Admiralty have accepted the tender of Messrs George Smith and Co. for the extension of Portsmouth Dockyard. This contract, under the provisions of an Act of Parliament, involves an expenditure of upwards of a million in the next four years. It is worthy of remark, says the *Post*, that hitherto the engagements of the government in works of a similar nature have been restricted to the financial year. This new system leads to great economy in the execution of public works.

Mr. Sidney E. Morse, of New York, says an American paper, has just patented a philosophical instrument, which is called a bathometer. You throw it overboard, with its appendages, in the ocean where water is miles deep. It goes down like a shot, and as soon as it touches the bottom it turns and comes back to the surface. You pick it up, and the true depth of the water where it struck the bottom is seen on the scale of the bathometer, just as you see the degrees of heat on the thermometer.

We shall be curious to hear something more of this remarkable instrument.

One of the local acts passed in the late session was for making and maintaining a subway from Deptford, under the River Thames, to the Isle of Dogs. The length of the subway is to be 582 yards. The approach is to be 110 yards in Deptford. There is to be an approach road, 136 yards in length, in Poplar. The subway is to be completed in five years.

Our nautical commanders will not be sorry to learn that the railway between Calcutta and Bombay is about 1000 miles long, and is traversed by trains in about four days. The only through traffic at present consists of mails and cargo. European passengers cannot travel the whole distance on account of the heat.

The *Glasgow Herald* states that the Emperor of Russia has presented a gold pocket compass, set with brilliants, to Mr. Archibald Smith, jun., F.R.S., of Jordan Hill, in recognition of the value of his

mathematical researches into the deviation of the compass in iron ships. These researches had previously been acknowledged in a similar manner by the British Admiralty. We are glad to see Mr. Smith's services thus recognized by so high an authority,—services so totally apart from those of his own profession.

The following steamers were launched on the Clyde during September:—The *Cormorant* and *Heron*, 109 tons each; *Columbia*, screw, 1,750 tons; a small screw of 150 tons, built by Messrs. Scott and Co., of Greenock; the *Nestorian*, a screw of 2,500 tons; the *Jason*, a screw of 1000 tons, built for the Royal Netherlands Steam Navigation Company; the *Verdin*, a screw of 200 tons; the *Surprise*, a small screw of 15 tons; the *Malvina*, a screw of 1,062 tons, built for the London and Edinburgh Shipping Company; the *Pizarro*, a screw of 722 tons; the *Aline*, screw, of 1,060 tons; and a small screw of 12 tons, intended to be used as a tender at Rio Janeiro.

Professor Agassiz says that the strip of highlands which divides the waters flowing into the St. Lawrence from those flowing into the Atlantic is the oldest land in the world. It was once a lonely sea beach, washed by the universal ocean.

An American company, including large China merchants, has obtained leave from the Emperor of China to lay a submarine cable from the North to Hongkong, connecting intermediate cities.

The *Army and Navy Gazette* gives the following particulars of the loss of the *Griffon*:—"It appears that on the evening of the 2nd of October, H.M.S. *Pandora* was at anchor off Little Popoe, when H.M.S. *Griffon* was seen beating up to relieve her on that station. As she would not be able to fetch Little Popoe before dark, the *Pandora* weighed and ran down to her, and Captain Davidson, of the *Griffon*, came on board to report himself to Captain Stubbs, his senior officer. At 8h. p.m. the two ships in company, under sail alone, with a steady, light breeze, were heading up on the port tack for Little Popoe, distant about two miles, the *Griffon* being on the *Pandora's* weather quarter. At this time the wind veered to the northward, and both ships broke off three or four points. The *Pandora* hove in stays, and, as she came head to wind, the *Griffon*, with her helm hard up, fouled her port quarter, carrying away a boat's davit. She soon cleared her, however, when the *Pandora* at once anchored, and the *Griffon* was hailed to do the same. The order was probably not understood, or, at any rate, not until too late, for in a few moments the *Griffon* ran into the surf and struck. Both anchors were let go, and the cables veered to the clinch, when they either parted or were slipped, and the heavy rollers and breakers carried the ship on to the beach. The fore and main masts went by the board, and the foreyard surging about alongside, knocked a hole in the port bow; this was, however, immediately patched up. The *Pandora* got up steam and veered cable until her stern was among the breakers in less than three fathoms water, but owing to the darkness of the night, and to the heavy surf, no material assistance could be rendered.

It was not until the following forenoon that Captain Davidson, at great personal risk, effected a landing through the rollers, when he found that his officers and men had got safely on shore without any casualty. On the morning of the 3rd communication with the wreck was established by a 7 in. hawser, which presently parted. Afterwards the *Griffon's* stream chain was brought to the *Pandora*, but the violent motions of both ships in the surf carried it away as soon as a slight strain was brought on it. Subsequently 175 fathoms of the *Pandora's* bower chain were floated on board the *Griffon*, every available puncheon, cask, and barrel being lashed to it. This operation, of the utmost difficulty in such a surf, was so successfully carried out, that the cable floated right on to the deck of the *Griffon*, but on the 6th this also parted. In the meantime the *Mullet* and *Jaseur* had arrived, and were joined on the 7th by the *Oberon*. But by this time it was evident that the *Griffon* would never come off, and that she was breaking up. So at length the *Pandora* weighed and steamed out from the perilous position which she had taken up among the rollers from the first. During this time every exertion was made by Captain Davidson to save as much as possible of the ship's stores. The sick were safely housed at Little Popoe. Most of the *Griffon's* men were sent afloat, while the arduous work on the shore was carried out by Captain Davidson with the Kroomen of the ships present. The ceaseless unflinching exertions by night and by day of the officers of the *Pandora* and *Griffon* to save as much government property as possible excited the warmest admiration in the squadron. The *Griffon* having been but just commissioned, the loss of three years' private stores will fall heavily on the captain and officers."

NAUTICAL PATENTS.

We find in the *Mechanic's Magazine* the following account of nautical patents.

838 M. Henry. *Improvements in mariners' compasses, in nautical clinometers or instruments for measuring the rolling and pitching of ships, in apparatus for firing ships' guns, and in other instruments or apparatus used in ships and other vessels.* (A communication.) Dated March 21st, 1866.

The object of the present invention is to construct apparatus in such manner that it or a portion of it shall maintain a determined and reliable position notwithstanding the pitching or rolling of the vessel. The invention consists in constructing an apparatus as follows:—A light plate is poised, suspended, or pivoted within a hollow sphere or spherical globe completely filled with liquid, such plate being placed at the central part of the sphere so as to oscillate about its geometrical centre. The globe may be fixed, or it may be supported on trunnions, universal joints, or other like contrivances. In this apparatus the plate will not be materially affected by the motion of the vessel if the plate be constructed very light, and so as to experience great resistance, frictional or otherwise, from the liquid filling the sphere when moving independently of it. The reason of this phenomenon may be thus explained:—When the apparatus

is on board of a vessel, any motion imparted to it can be divided or resolved into two motions, one of translation and one of rotation. The first motion has no action on the liquid mass, which is incompressible and fills the sphere entirely, so that its centre of gravity cannot be displaced. The second motion evidently produces a friction on the liquid, and the said friction, were the rotation always imparted in the same direction, would generate a corresponding rotation in the liquid mass; but this is not the case—the rotary motion is only alternative, and does not sensibly affect the immobility or inertia of the central portion of the liquid sphere. The pivoted, poised, or suspended plate, which is placed in the middle of the sphere, must necessarily retain a corresponding immobility or state of rest. *Patent completed.*

843 S. Chatwood and J. and T. Sturgeon.—*Improvements in indicating and recording the distance run and direction of a ship or vessel, and in apparatus employed therein.* Dated March 21st. 1866.

This invention consists in indicating, registering, and recording by self-acting appliances the rate of progress, direction, and duration of direction, of the vessel upon suitably arranged paper, which may be attached to tables or cylinders, or otherwise carried, and receive a uniform movement, in one direction indicating duration of time by means of a chronometer or by ordinary clockwork, other movements being also imparted to the apparatus as herein described. From the combined diagrams, registers, or log thus produced, sufficient data will be obtained to enable any person of ordinary capacity to mark down upon a chart a line approximately indicating the vessel's course, and its then present position. The necessary apparatus for effecting this may be variously arranged and modified. For instance, the magnetic needle may be hung so as to support and carry with it a light cardboard cylinder to which sensitive paper may be attached, so as to be chemically acted upon by rays of light or heat obtained from a lamp, and collected by a suitable lens into a focus sufficiently acute to produce a discoloration on the sensitive paper, so as to form a continuous mark or line, either by the axial motion of the cylinder, or by the movement vertically of the lens along the cylinder, which may be effected by means of clockwork. The prepared paper being divided into equal spaces indicating time in the direction pursued by the "lamp tracer," and into divisions corresponding to the points of the compass in the direction of its axial motion given by the magnetic needle, will clearly indicate by the diagram produced upon it the direction in which the vessel has been sailing at any hour of the day, and the length of time for which that direction has been maintained, the various tacks and changes of direction, and the precise time at which such tacks and changes took place. The number of miles travelled in a given time may be indicated upon a strip of paper divided into spaces indicating divisions of time, which is wound round a barrel by clockwork at a speed corresponding to time. A pencil or other tracer is pressed against the paper so as to mark a line upon the paper as it passes beneath the tracer, in which line slight breaks or marks are made at intervals denoting distance run, these breaks or marks being produced either by electrical action or by mechanical arrangements acted upon by any suitable apparatus for recording the distance run by a vessel. The two diagrams thus obtained will supply all the data necessary for tracing a line indicating the ship's course upon a map or chart. *Patent completed.*

970 G. Allix. *Improvements in reefing and furling sails and in apparatus connected therewith.* Dated April 5th, 1866.

This invention relates, firstly to the reefing and furling of courses by causing the lower yard to revolve by means of ordinary topping lifts fitted as parbuckles, as hereafter described; also to the connection of the lower yard with the

masts, and to the fittings on to the ends of the yards. The patentee claims, first, reefing and furling courses and lower topsails of double topsails by causing the lower yards, in the case of courses, and the lower topsail yards, in the case of double topsails, to revolve by means of ordinary topping lifts fitted as parbuckles, as described and represented in the drawings. Second, the arrangement or combination of parts for connecting the lower yard to and suspending it from the mast, as described and represented in the drawings. Third, the arrangements or combinations of the fittings on the ends of the yards of square sails, and the booms of fore and aft sails, as described and represented in the drawings. Fourth, the employment on the bight of the parbuckle of topsail and other upper yards of a block to which one end of the tie is connected, as and for the purpose described and represented in the drawings. Fifth, forming the portions of the topsail and topgallant yards round which the parbuckles are wound of only about half the diameter of the centre of the yard, as and for the purpose described and represented in the drawings. Sixth, constructing each hoop of double-hooped parallels in two parts or halves, as and for the purpose described and represented in the drawings. Seventh, attaching the inner ends of the chafing spars to the ends of a crossbar fixed to the claw in such manner that a slight oscillating motion is allowed to the crossbar and to the claw, as described and represented in the drawings. Eighth, the employment on the claws at the centre of topsail and topgallant yards of a bracket or span having attached thereto a block, through which the tie is rove, as and for the purposes described and represented in the drawings.
Patent completed.

CHARTS AND BOOKS PUBLISHED BY THE HYDROGRAPHIC OFFICE,
ADMIRALTY, in November, 1866.—Sold by the Agent, J. D. Potter, 31,
Poultry, and 11, King Street, Tower Hill, London.

- 1.—British Islands to Mediterranean Sea, 1866, (2s. 6d.)
481.—West Indies, Trinidad Island, Serpent's Mouth, with views, Com-
mander Chimmo, R.N., 1866, (2s. 6d.)
895.—Banda Sea, Allas Strait, French and Dutch charts, to 1866, (1s.)
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Tide Tables, 1867, John Burdwood, Staff-Commander, R.N., (1s. 6d.)
EDWARD DUNSTERVILLE, *Commander, R.N.*
Admiralty, Hydrographic Office, 21st November, 1866.

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The **Egyptian Government** adopted it in 1864, and the following letter has been lately received by Messrs. Peacock and Buchan:—

Egyptian Navigation Company, Azeoziah Mussriah.

81, Mark Lane, 7th July, 1865,

"Messrs. Peacock and Buchan

Dear Sirs,—I have received orders to send to Egypt three tons of your patent Composition for ships' bottoms, same as supplied me in July, 1864. I now wish to know the soonest time you could have this packed and ready for shipment, as there is one of the Company's steamers will leave London about the end of next week. Please reply by return, and state price.

I remain, yours obediently,
(Signed) D. ABDUL HAMID BEY.
I. Fricken."

The "**Services Maritimes des Messageries Imperiales**" of France, after a series of trials against mercurial and copper preparations in India, have adopted it on their iron fleet, and large supplies have lately been sent to Suez from Southampton.

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

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

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

Messrs. PEACOCK AND BUCHAN, Southampton.

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

(Signed) WILLIAM VINCENT, Superintendent.

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

Messrs. PEACOCK AND BUCHAN.

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

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

The Thames Iron Works, Ship Building, Engineering and Dry Dock Company, Limited,
Orchard Yard, Blackwall, E.

September 26th, 1865.

"Messrs. Peacock and Buchan.

Gentlemen,—I shall at all times have much pleasure in bearing testimony as to the value and superiority of your Compositions for ships' bottoms.

I have used the No. 2 extensively for the last fifteen years, more particularly on the bottoms of iron ships belonging to the Peninsular and Oriental Steam Navigation Company, and in every instance successfully. It is easily applied, economical, keeps the bottom clean, and also has the property of preserving the iron.

I visited in dock an iron sailing vessel, called the *Chile*, a few weeks since, and found her bottom perfectly clean, which had been coated with your Composition for upwards of twelve months, having made a voyage to New Zealand and back, and in salt water the whole time.

I have also used your No. 1 Composition for the bottoms of wooden ships, coppered, and found it most advantageous, making the copper last double the usual time, and then only taken off to recalk.

I have at various times tried preparations of copper on iron ships, and in every case found the iron and rivets damaged.

I am, gentlemen,
Yours faithfully,
(Signed) J. R. ENGLEDUÉ."

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

London, 14th December, 1864.

Messrs. PEACOCK AND BUCHAN, Southampton.

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

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

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

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ON HIS FIRST VOYAGE TO AMERICA

WITH A TRANSLATION OF

THE BARON BONNEFOUX'S

HISTORY OF HIS PREVIOUS LIFE

ALSO

A CHART SHOWING HIS TRACK FROM THE LANDFALL TO CUBA

AND

AN OUTLINE OF HIS SUBSEQUENT VOYAGES

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

Of the Hydrographic Office, Admiralty.

AUTHOR OF THE VOYAGE OF H.M.S. CHANTICLER, ETC. ETC.

J. D. POTTER,

31, POULTRY, AND 11, KING STREET, TOWER HILL

Royal National Life-Boat Institution.

Patroness—HER MOST GRACIOUS MAJESTY THE QUEEN.

President—THE RIGHT HON. THE EARL PERCY, P.C.



APPEAL.

THE COMMITTEE OF MANAGEMENT have to state that, during the past year (1865), the ROYAL NATIONAL LIFE-BOAT INSTITUTION has expended 23,248*l.* on various Life-boat Establishments on the Coasts of England, Scotland, and Ireland. During the same period the Life-boats of the Institution have also been instrumental in rescuing the Crews of the following Wrecked Vessels:—

Fishing Boat, of Berwick-on-Tweed—Saved vessel and crew	6	Brigantine <i>Light of the Harem</i> , of Whitstable—Saved vessel and crew	4	Brig <i>Wearmouth</i> , of Sunderland... 9
Brig <i>Elizabeth</i> , of Shields—Saved vessel and crew	7	Brig <i>Stefania</i> , of Palermo—Saved vessel and crew	12	Brig <i>Commercievaldin Haupt</i> , of Mecklenburg
Lugger <i>La Marie François, le Pere Samson</i> —Saved vessel and crew ..	4	Schooner <i>Henry Holman</i> , of Plymouth—Saved vessel and crew ..	8	Schooner <i>Test</i> , of Southampton ... 6
Brig <i>Willie Ridley</i> , of Plymouth ...	8	Schooner <i>Thomas</i> , of Liverpool....	5	Brigantine <i>Tabaco</i> , of Hamburg... 5
Schooner <i>Susan</i> , of Dublin	4	Brig <i>Nautilus</i> , of South Shields—Saved vessel and crew	9	Barque <i>Atlas</i> , of North Shields ... 13
Smack <i>Leader</i> , of Harwich	1	Brig <i>Hartington</i> , of Sunderland—Saved vessel and crew	9	Norwegian Barque <i>Sirus</i> —Saved vessel
Schooner <i>Anga</i> , of Norway—Saved vessel and crew	4	Brig <i>Kathleen</i> , of Hartlepool—Saved vessel and crew	6	Brig <i>Anne and Mary</i> , of North Shields 9
Barque <i>Amana</i> , of Sunderland ...	18	Schooner <i>Patrios</i> , of Barth	5	Ship <i>Savoir Faive</i> , of Liverpool ... 23
Schooner <i>Albion</i> , of Teignmouth... 6		Sloop <i>Robert Hood</i> , of Newcastle-on-Tyne	2	Brig <i>Raren</i> , of London—Saved vessel and crew
Schooner <i>Emma</i> , of Barrow	5	French brig <i>Providence</i> , of Granville	4	Schooner <i>Tobias</i> , of Jersey
Yawl <i>Matchless</i> , of Newhaven—Saved vessel and crew	3	Schooner <i>Karl Zeland</i> , of Almahwch—Saved vessel and crew	5	Ship <i>Orao</i> , of North Shields
Brig <i>Hants</i> , of Odessa—Saved vessel		Schooner <i>Emma</i> , of Barrow	6	Smack <i>Mary</i> , of Cardigan
Barque <i>Lexington</i> , of Nassau—Assisted to save vessel and crew	14	Schooner <i>Reaper</i> , of Scarborough ... 6		Steamer <i>Barbadian</i> , of Liverpool ... 4
Brig <i>Border Chieftain</i> , of Hartlepool	8	Schooner <i>Franklin</i> , of Belfast	4	Schooner <i>Daniel O'Connell</i> of Arklow 5
Schooner <i>Delia</i> , of Nantes	7	Longships Lighthouse Keeper	1	Brig <i>Zeepees</i> , of Hooges
Brigantine <i>Aclipsa</i> , of St. Ives	2	Schooner <i>Clara Brown</i> , of Barrow ... 4		Brig <i>Lucy</i> , of Sunderland
Schooner <i>Pfeil</i> , of Blankanese	7	Schooner <i>Maria</i> , of Hull—Saved vessel and crew	3	Schooner <i>Wilhelmina</i> , of Veendam 1
Schooner <i>Kate</i> , of Lynn	4	Fishing Coble, of Newbiggn	4	Ship <i>Tenessarian</i> , of Liverpool ... 34
Schooner <i>Teaser</i> , of Goole	1	Fishing Smack <i>Splendid</i> , of Grimsby	11	Brigantine <i>Neptune</i> , of Delaware, U.S.
Ship's boat in Redwharf Bay, Anglesea	1	Belgian Brig <i>Erpo</i>	11	Schooner <i>Tom Cringle</i> , of Thurso ... 4
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Steamer <i>Ocean Queens</i> , of Newcastle	15	Lighter in Dublin Bay	5	Barque <i>Norma</i> , of Bremen
Lugger <i>Peep o' Day</i> , of Wexford ... 6		Brig <i>Argo</i> , of Fayal—Saved vessel	13	Smack <i>Diru Protège Alexandre et Leon</i> , of Dieppe
Barque <i>Maria Soames</i> , of London ... 19		Barque <i>Drydens</i> , of North Shields ...		
Schooner <i>Speed</i> , of Wexford	6			
Smack <i>Agnes and Mary</i> , of Glasgow	1			
Sloop <i>Catherine</i> , of Liverpool—Saved vessel and crew	4			
Schooner <i>Johnson</i> , of Exeter	4			

GENERAL SUMMARY TO THE 31st DECEMBER, 1865.

	£.	s.	d.
Number of Lives rescued by Life-boats, in addition to 20 vessels saved by them	532		
Amount of Rewards to Life-boat Crews	1,689	12	11
Number of Lives saved by Shore-boats, &c.	182		
Amount of Rewards to the Crews of Shore-boats		120	10 0
Honorary Rewards:—Silver Medals	9		
Votes of Thanks on Vellum and Parchment	27		
Total	36	714	£1,790 2 11

The Committee desire to acknowledge their grateful sense of the liberal support which they have received from the British public during the past few years, a support which has enabled them to establish their present great fleet of 153 Life-boats on the shores of the United Kingdom. Deeply sensible, however, of the great responsibility that rests on them to maintain their fleet in a thoroughly efficient state, and its crews practised in the management of their boats, which can only be effected by a large and permanent annual income, they earnestly appeal to all classes of their countrymen to continue to aid them in upholding and perpetuating so great and truly national a work.

The number of Lives saved, either by the Life-boats of the Society or by special exertions, for which it has granted rewards since its formation, is 14,980; for which services 82 Gold Medals, 751 Silver Medals, and 21,218*l.* in cash have been paid in rewards. The Institution has also expended 130,732*l.* on its One Hundred and Fifty-three Life-boat Establishments.

Donations and Annual Subscriptions are earnestly solicited, and will be thankfully received by the Bankers of the Institution, Messrs. WILKES, ERICSSON, and Co. 26, Lombard Street; Messrs. GUNN and Co. 59, Strand; Messrs. HERRIES,

Royal National Life-Boat Institution.

(Incorporated by Royal Charter.)

Supported by Voluntary Contributions.

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President—THE RIGHT HON. THE EARL PERCY, P.C.

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Deputy Chairman—THOMAS CHAPMAN, Esq., F.R.S., V.P.

Secretary—RICHARD LEWIS, Esq., of the Inner Temple, Barrister-at-Law.

LIST OF THE LIFE-BOAT STATIONS OF THE INSTITUTION.

ENGLAND.					
NORTHUMBRIA		SUSSEX	55 Shoreham.	LANCASHIRE	Piel
1	Berwick-on-Tweed.	HAMPSHIRE	Worthing.	CUMBERLAND	Whitehaven.
	Holy Island.		Selsey.		Maryport.
	North Sunderland.	ISLE OF WIGHT	Hayling Island.		110 Silloth.
	Boulmer.		Holystone Grange.	ISLE OF MAN	Castletown.
			60 Brooke.		
5	Alnmouth.	GURNEY	St. Samson's.	SCOTLAND.	
	Hauxley.	DOESSET	Lyme Regis.	KIRKCUDBRIGHT	Kirkcudbright.
	Newbiggin.		Poole.	AYRSHIRE	Girvan.
	Cullercoats.	SOUTH DEVON	Exmouth.		Ayr.
	Tynemouth—No. 1.		Teignmouth.		115 Irvine.
	No. 2.	CORNWALL	Plymouth.	ARGYLSHIRE	Campbeltown.
10	"		Lizard.	CAITHNESS-SHIRE	Thurso.
	Whitburn.		Portlieven.	ELGINSHIRE	Lossiemouth.
	Sunderland.		70 Penzance.	BANFFSHIRE	Buckle.
	Seaton Carew.		Sennen Cove.		120 Banff.
YORKSHIRE	Middlesborough.		St. Ives.	ABERDEENSHIRE	Fraserburgh.
15	Redcar.		Hayle.		Peterhead.
	Saltburn.		New Quay.	FORFAR	Arbroath.
	Whitby.		Padstow.		Brough.
	Uppang.		Bude Haven.		(Dunde.)
	Scarborough.		Braunton.	FIFESHIRE	125 St. Andrew's.
20	Filey.	NORTH DEVON			Anstruther.
	Bridlington.			HADDINGTONSHIRE	North Berwick.
	Hornsea.				Dunbar.
	Withernsea.	WALES.			
LINCOLN	Donna Nook.	GLAMORGANSHIRE	Penarth.	IRELAND.	
25	Theddlethorpe.		80 Porthcawl.	CO. LONDONDERRY	Greencastle.
	Sutton.		Swansea.	ANTRIM	130 Portrush.
	Skegness.	CARMARTHENSHIRE	Pembrey & Llana.	DOWN	Groomsport.
NORFOLK	Blakeney.		Carmarthen Bay.		Ballywalter.
	Cromer.		Tenby.		Tyrella, Dundrum.
30	Mundesley.	PEMBROKESHIRE	85 Fishguard.	LOUTH	135 Newcastle, do.
	Bacton.		Cardigan.	DUBLIN	Dundaik.
	Palling.	CARDIGANSHIRE	Newquay.		Drogheda.
	Winterton.		Aberystwith.		Skerries.
	Calster.	MERIONETHSHIRE	Aberdovey.		Howth.
35	Yarmouth, No. 1.		90 Barmouth.		Poolbeg.
	No. 2.	CARNARVONSHIRE	Portmadoc.		140 Kingstown.
SUFFOLK	Lowestoft.		Porthlinden.	WICKLOW	Wicklow.
	Pakefield.		85 Llandwyn.		Arklow.
	Southwold.		Rhoscolyn.	WEXFORD	Courtown.
40	Thorpeness.		Holyhead.		Cahore.
	Aldborough.		Cenlyn.		46 Wexford.
KENT	Margate.		Mœllef.		Rosliare Fort.
	King-gate.		Penmon.		Carnore.
	North Deal.	CARNARVONSHIRE	Orme's Head.		Tramore.
45	Walmer.	FLINTSHIRE	120 Rhyll (Tubular).		Dungarvan.
	King-down.				150 Ardmore.
	Dover.				CORK
	Dungeness.	CHESHIRE	New Brighton, No. 1.		153 Valentia.
SUSSEX	Rye.		Do. (Tubular) No. 2.		
50	Winchelsea.	LANCASHIRE	Southport.		
	Hastings.		105 Blackpool.		
	Eastbourne.		Fleetwood.		
	Newhaven.				
	Brighton.				

The following are Extracts from the General Rules of Management:—

"Each Life-boat to have a Coxswain Superintendent, with a fixed Annual Salary of £8, and an Assistant Coxswain with a yearly Salary of £2.

"The Life-boat to be regularly taken afloat for exercise once every quarter, fully manned and equipped, so that the Crew may be familiar with her qualities and proper management. On every occasion of exercise, the men are to be paid 6s. each in stormy weather and 3s. each in fine weather; 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 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 his Boat, and proceed to her assistance.

"The Local Committee to make quarterly inspection, and Report to the Institution as to the behaviour of the Boat during exercise, pointing out any defect that may be remedied, and offering any suggestion that may conduce to the efficiency of the service."

The expense of a Life-boat Station is £620. Its cost is made up as follows:—

Life-boat and her equipment, including life-belts for the crew	£320
Transporting carriage for the Life-boat.	100
Boat-house (average cost)	200
Total	£620

Donations and Annual Subscriptions will be thankfully received by the Bankers of the Institution, Messrs. WILKES, PERCIVAL and Co., 76 Lombard Street; Messrs. COLTUS and Co., 69 Strand; Messrs. HERRIES, FARQUHAR, and Co.,

